FIG. 1

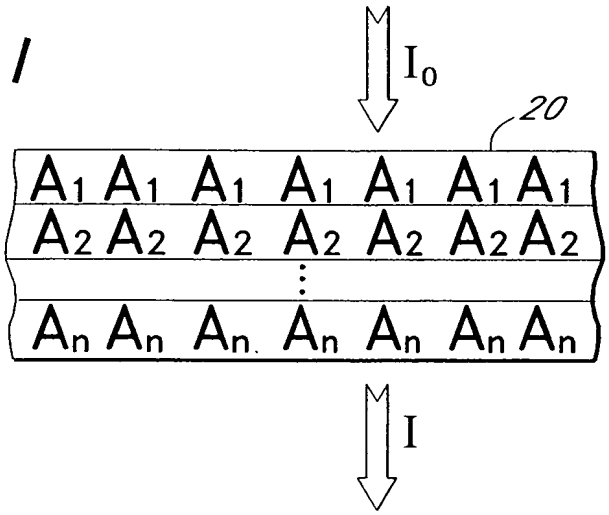


FIG. 2a

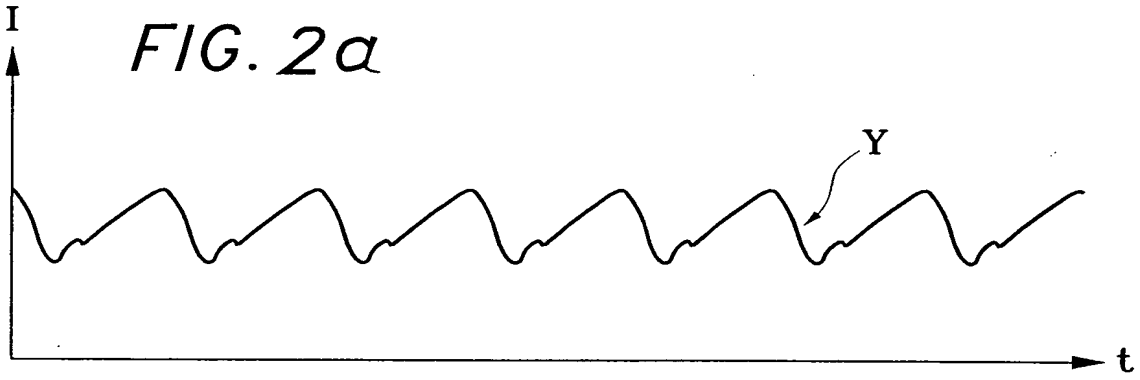


FIG. 2b

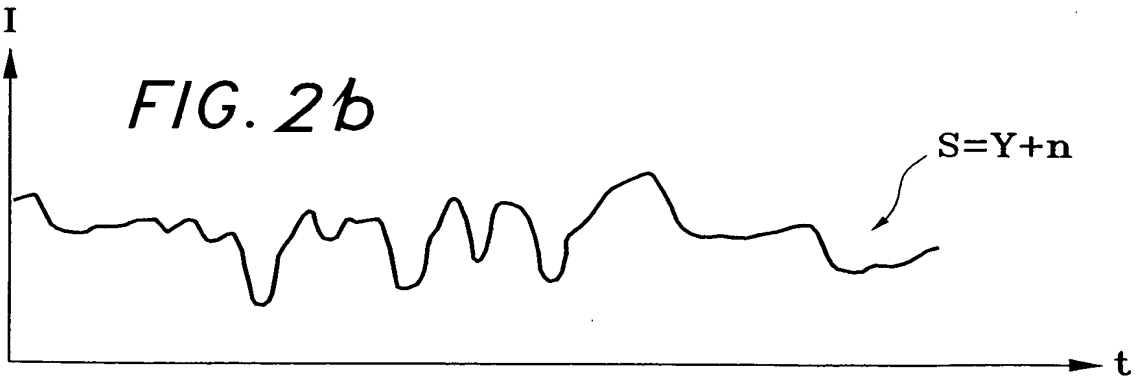


FIG. 3

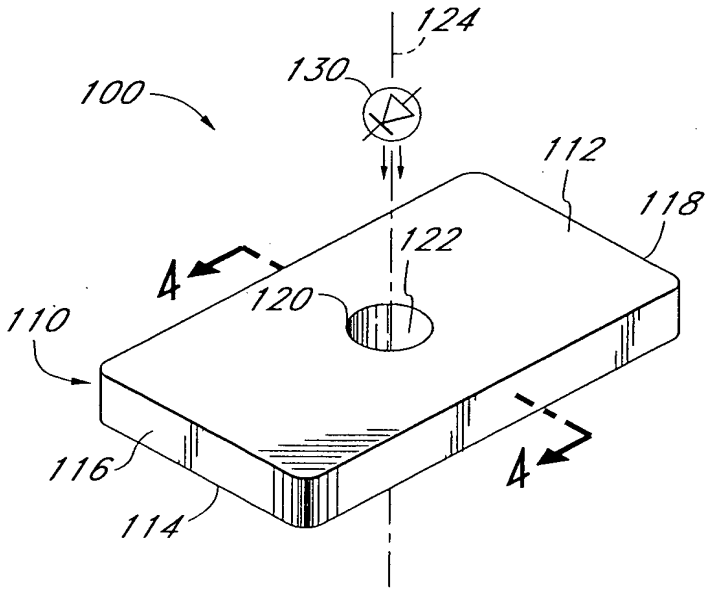

124
130
100
112
118
122
4
120
110
116
114
4

FIG. 4

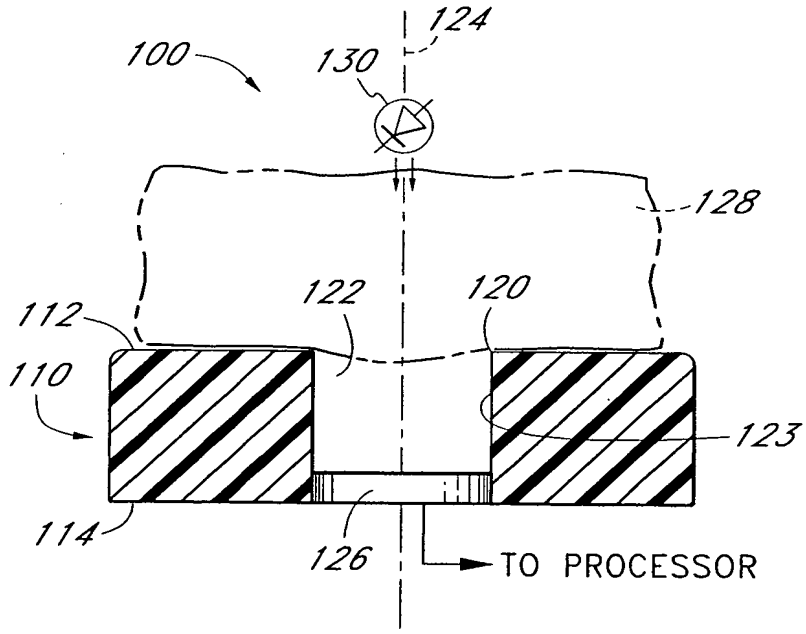

124
100
130
128
122
120
112
110
123
114
126
TO PROCESSOR

FIG. 5

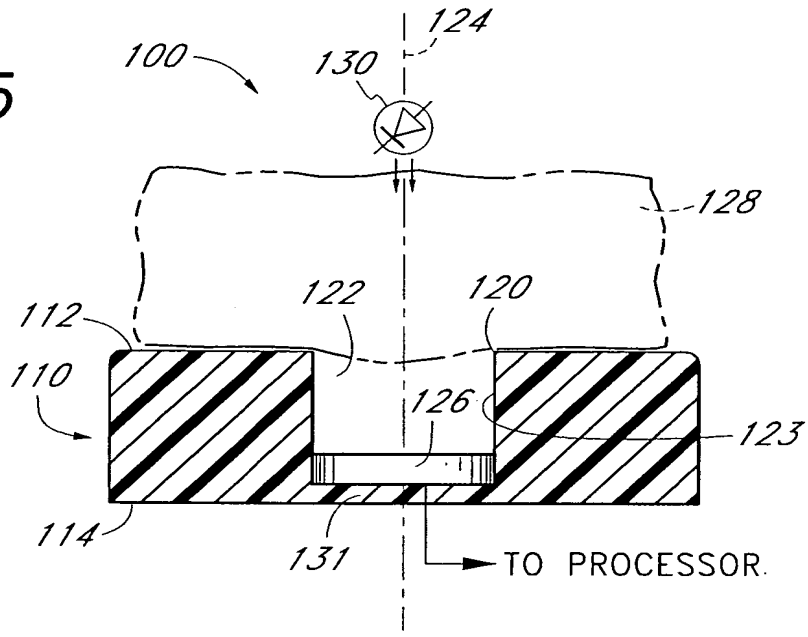
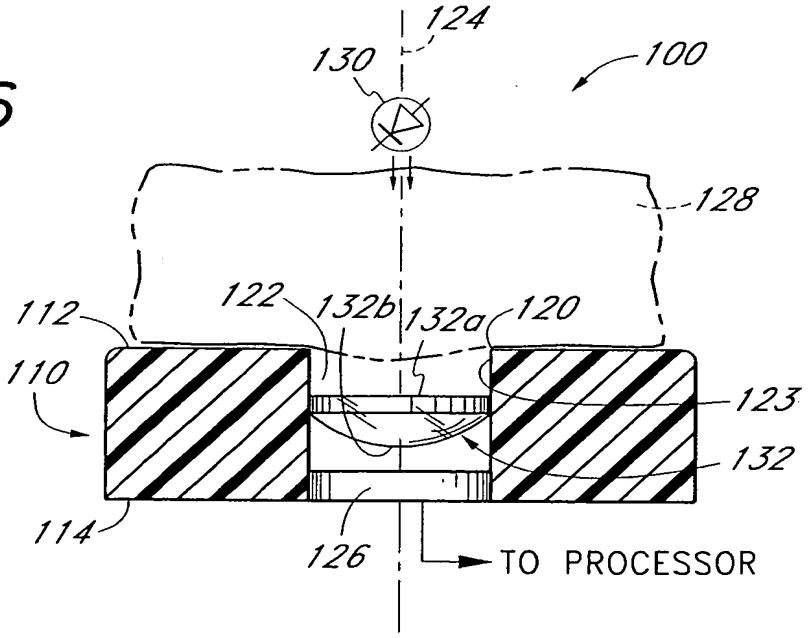

100
130
124
128
122
120
112
110
126
123
114
131
TO PROCESSOR

FIG. 6


124
130
100
128
122
132b
132a
120
112
110
123
132
114
126
TO PROCESSOR

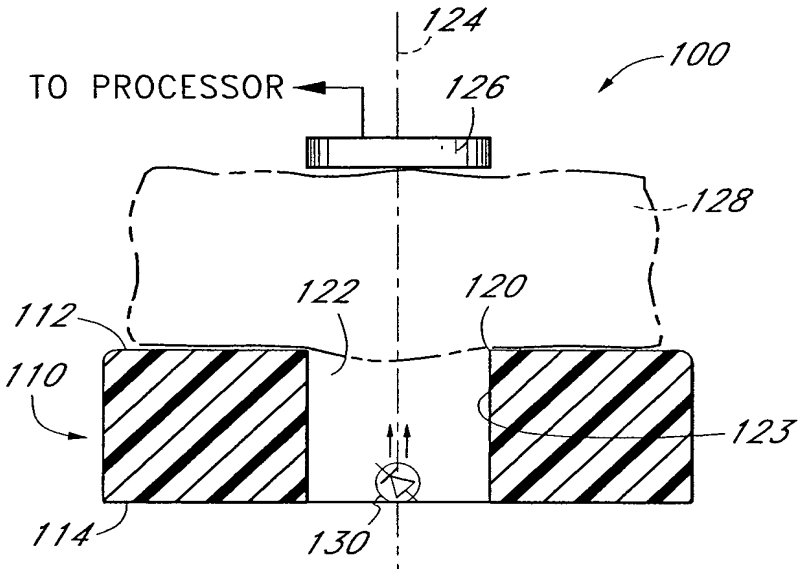


FIG. 7

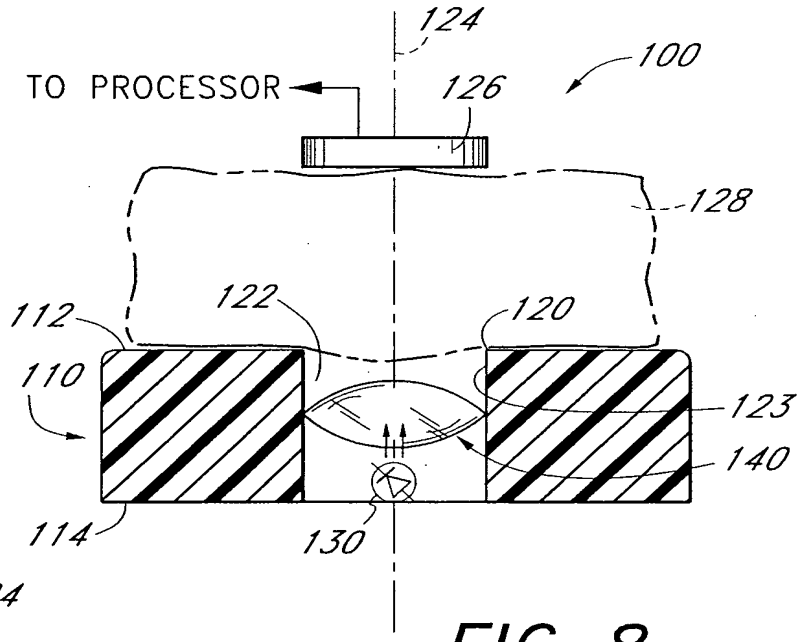
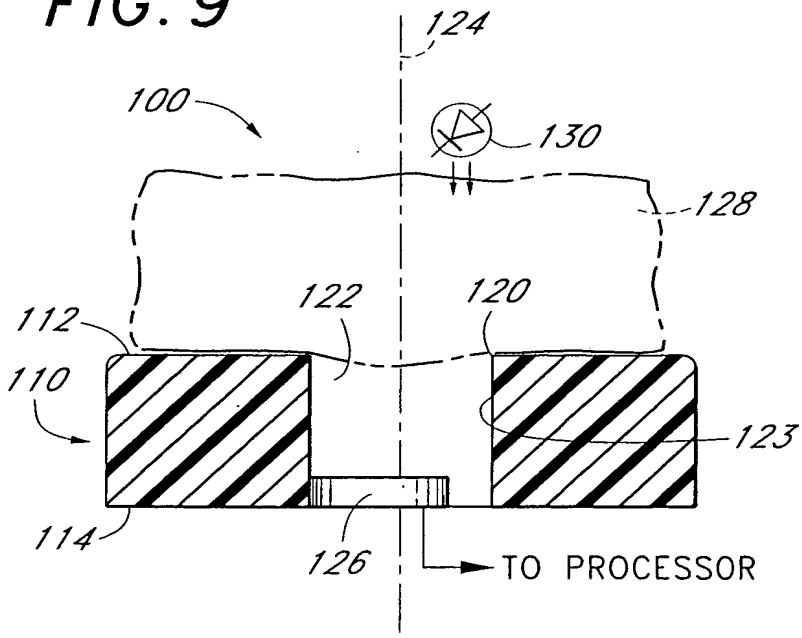


FIG. 8

FIG. 9



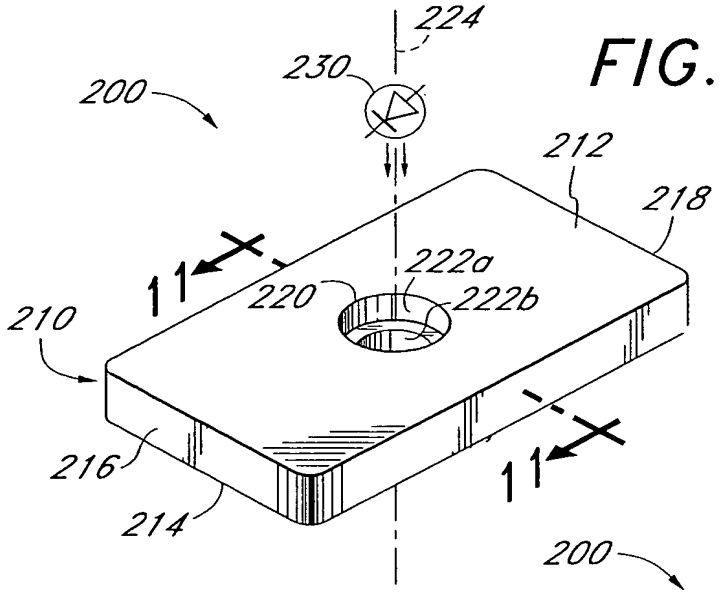


FIG. 10

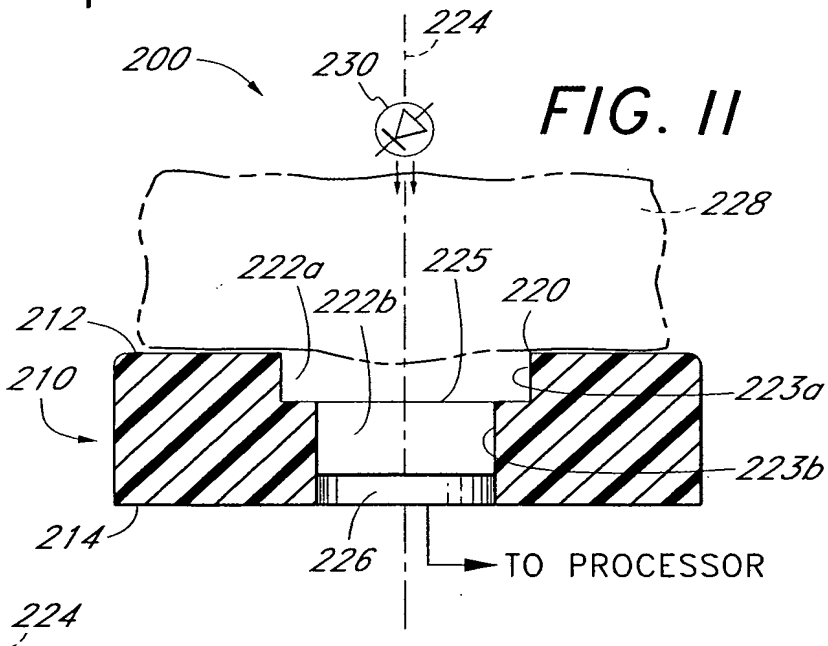


FIG. 11

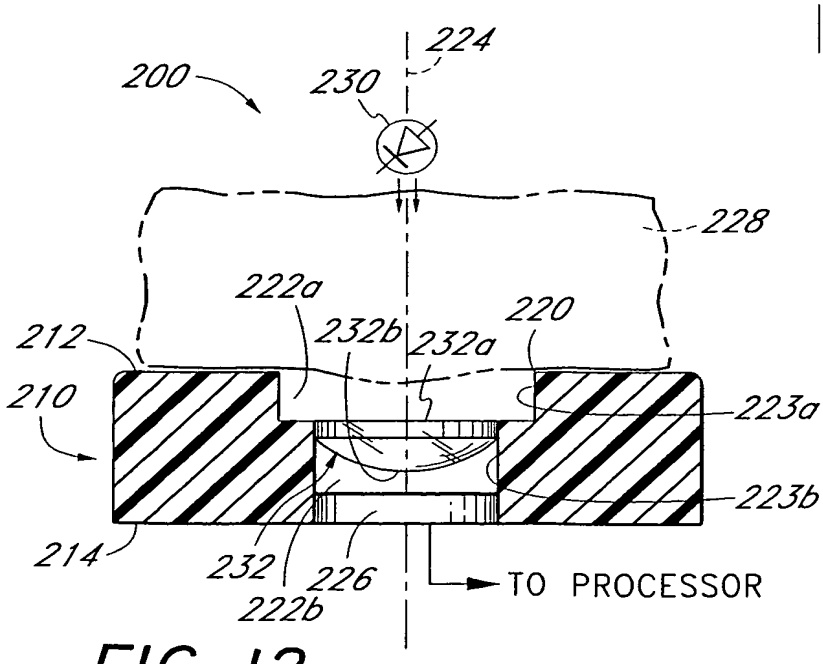


FIG. 12

FIG. 13

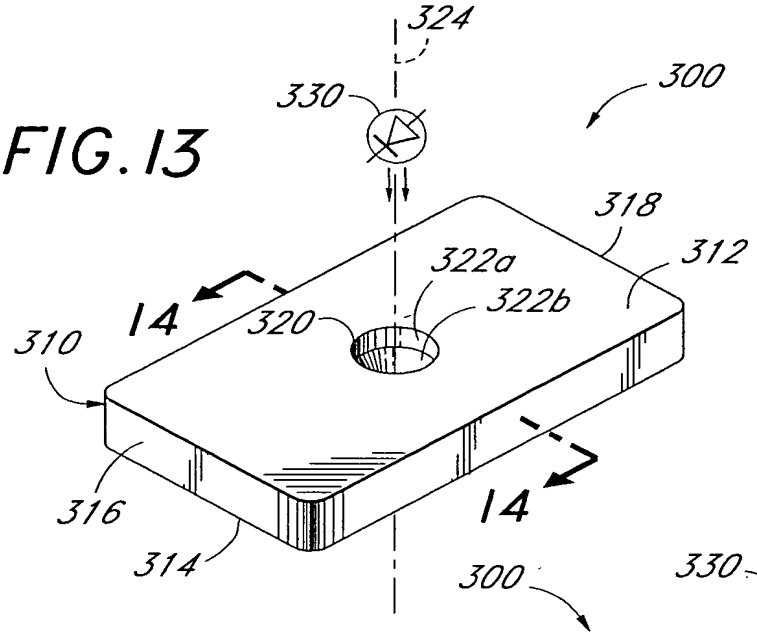
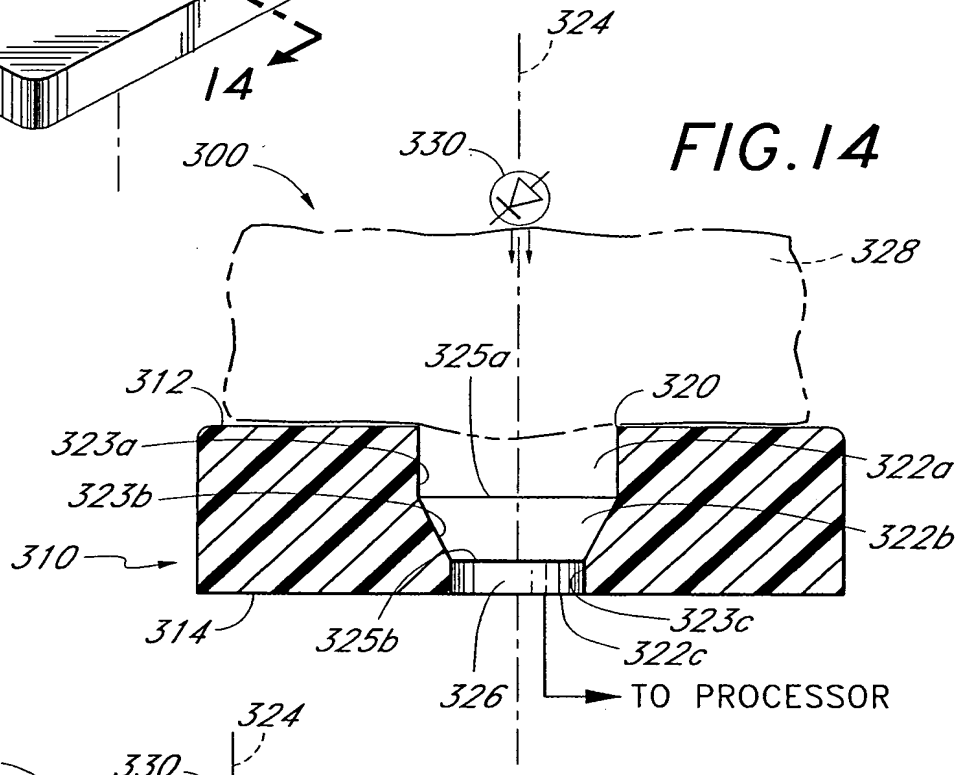


FIG. 14



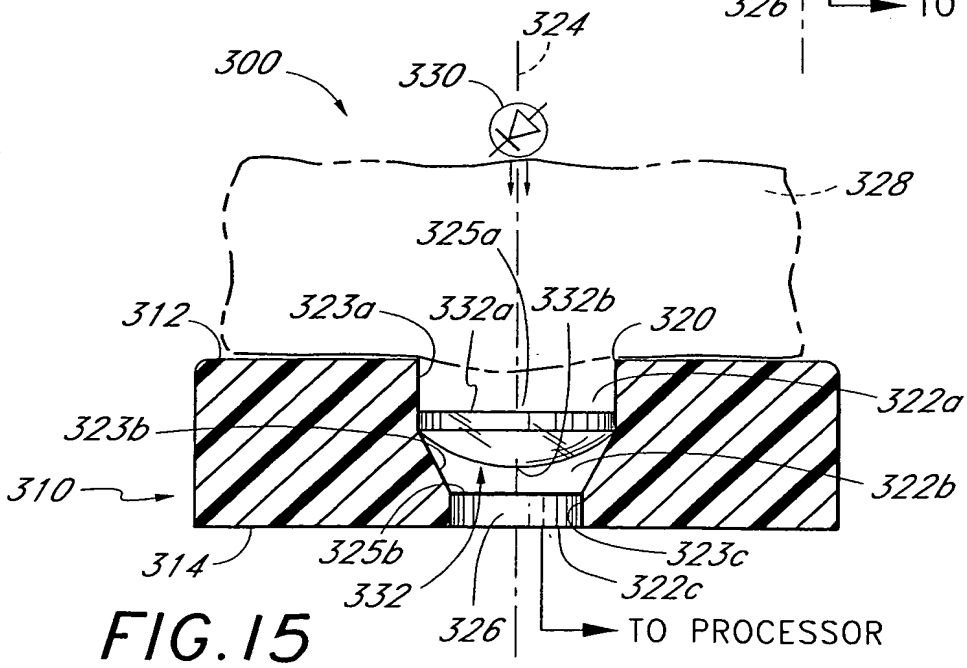
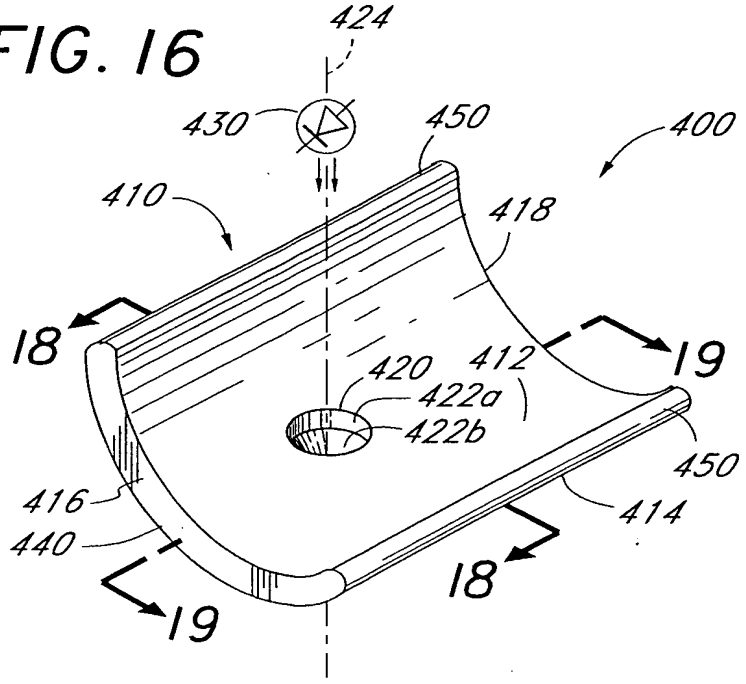


FIG. 15

FIG. 16



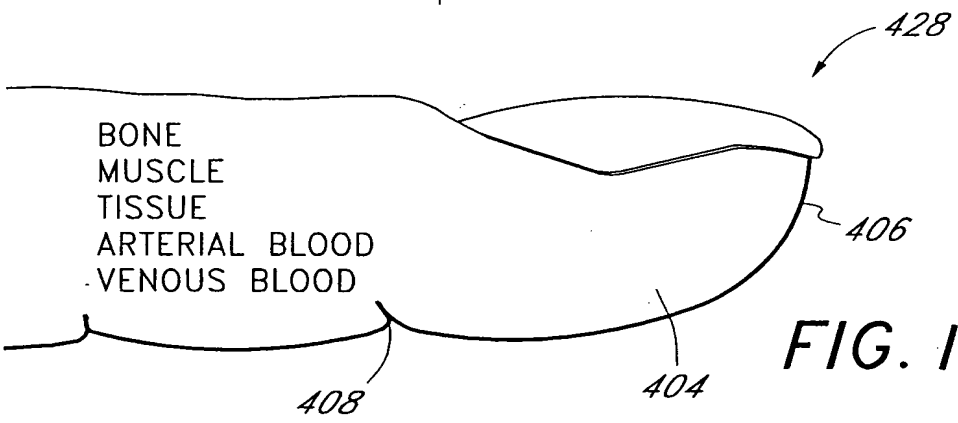


FIG. 17

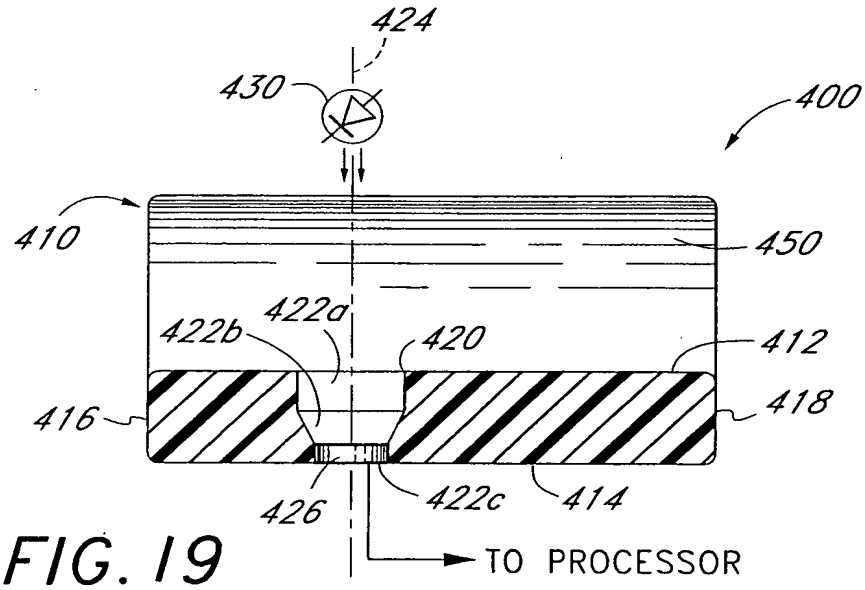


FIG. 19

FIG. 18

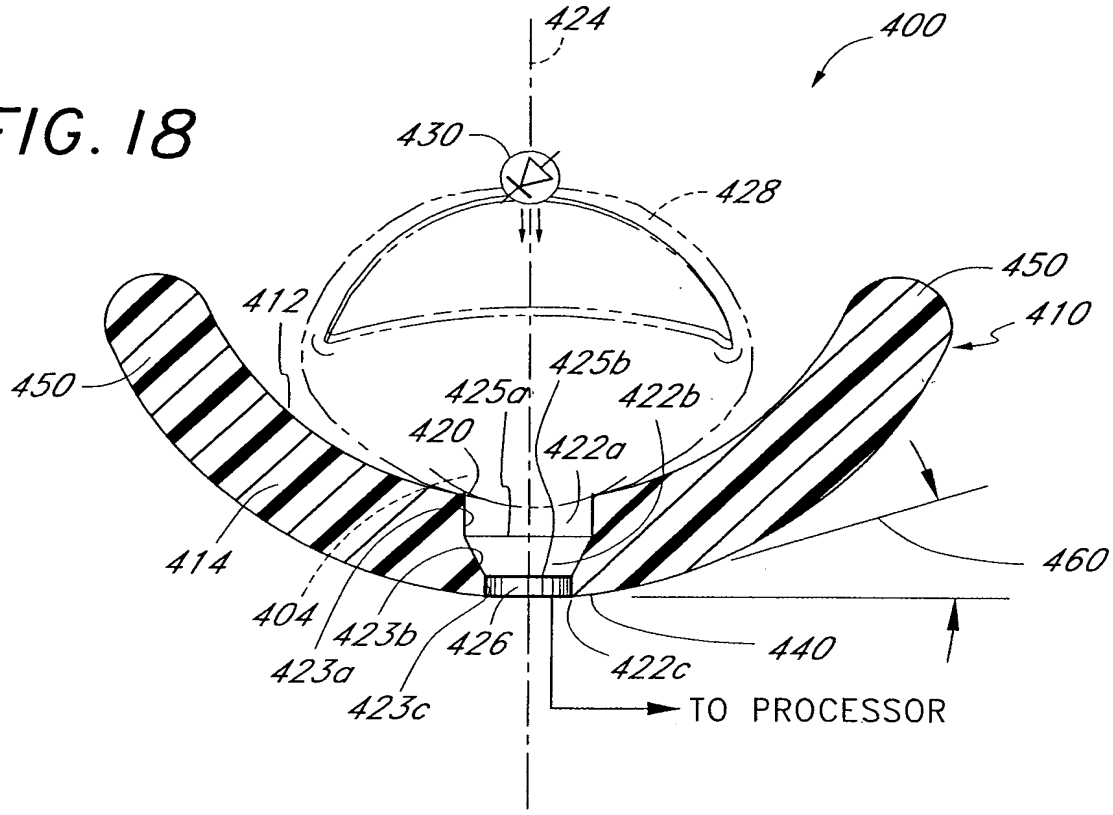

424
400
430
428
450
410
412
450
425b
425a
422b
420
422a
460
414
404
423b
426
423a
422c
440
423c
TO PROCESSOR

FIG. 20

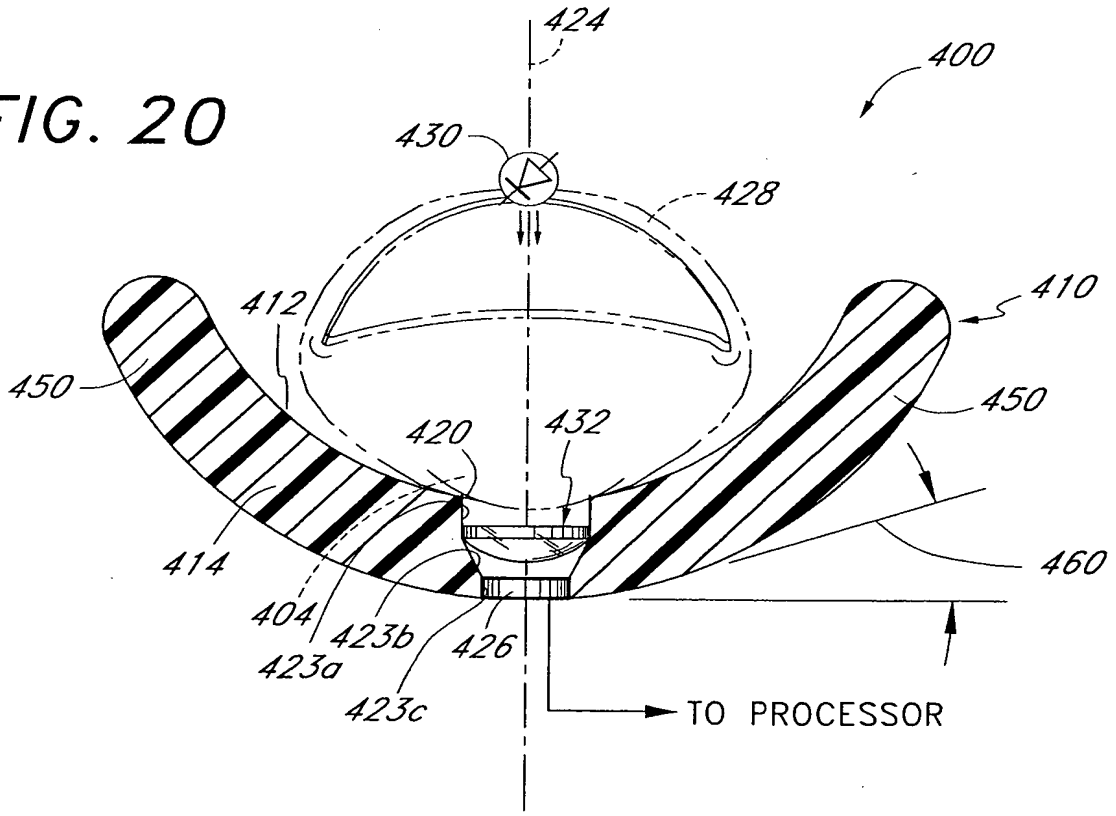

424
400
430
428
410
412
450
450
420
432
460
414
404
423b
426
423a
423c
TO PROCESSOR

FIG. 21

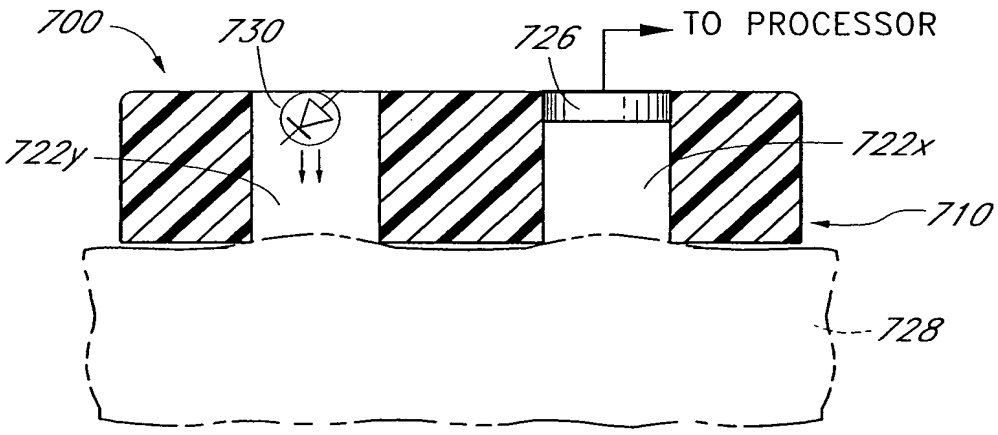


FIG. 22

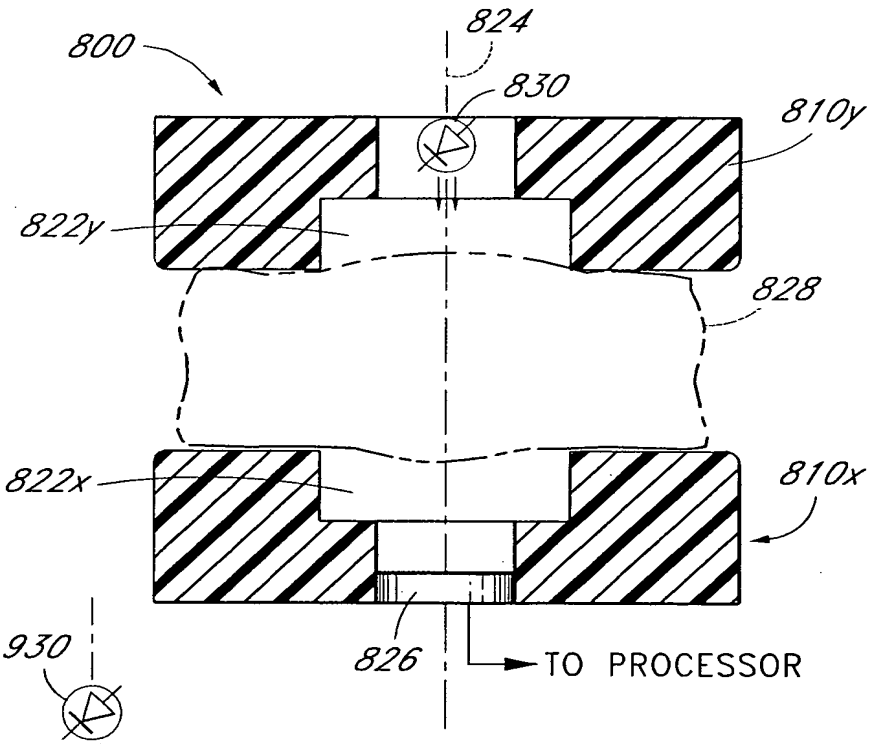
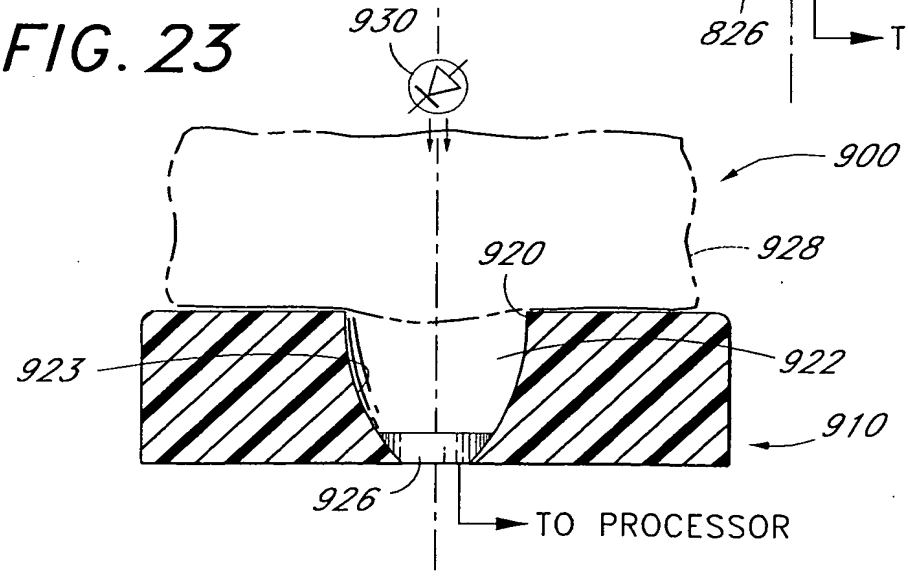


FIG. 23



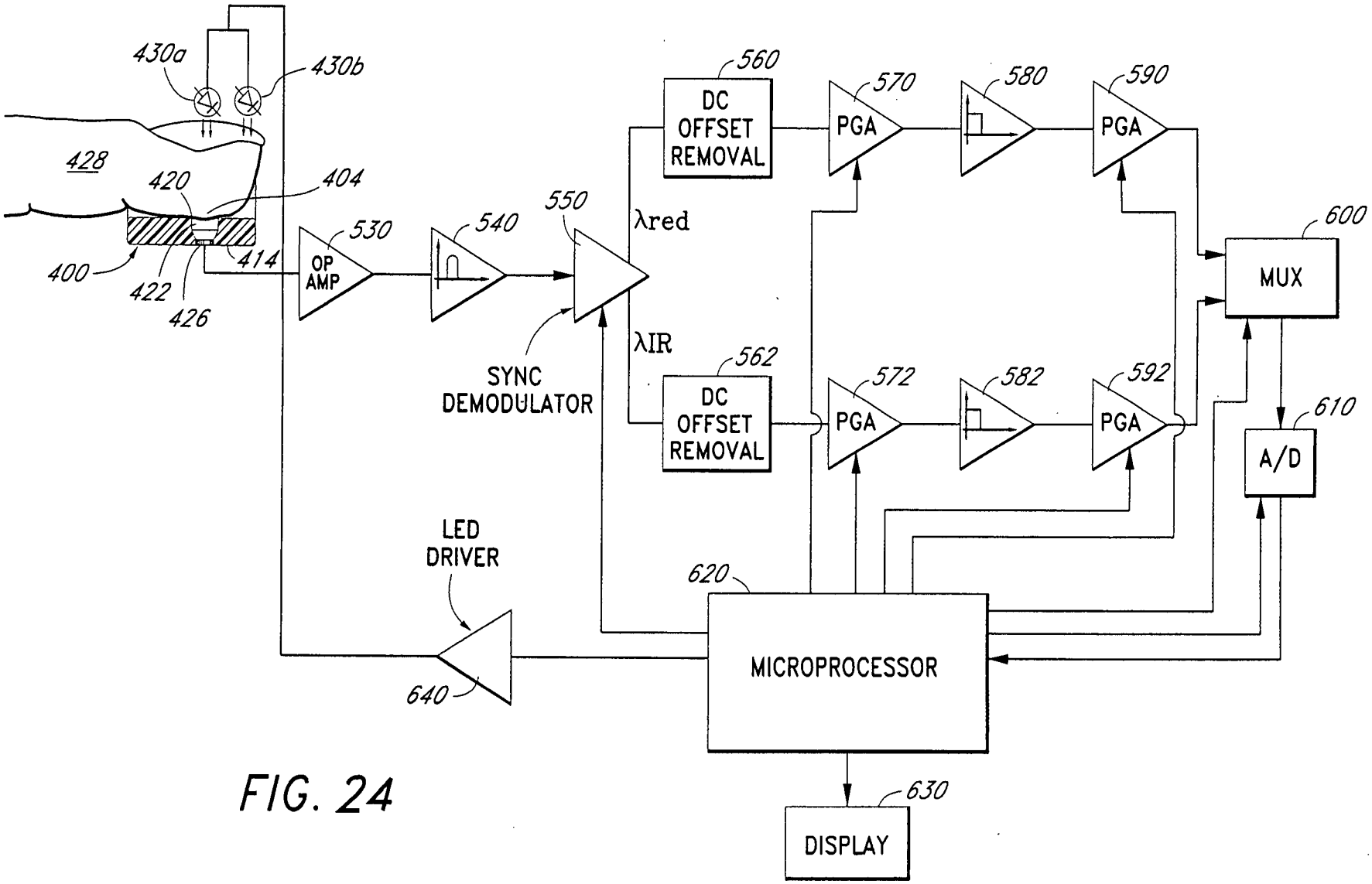

430a
430b
428
420
404
400
422
426
414
OP AMP
530
540
550
λred
λIR
SYNC DEMODULATOR
560
DC OFFSET REMOVAL
562
DC OFFSET REMOVAL
570
PGA
572
PGA
580
582
590
592
600
MUX
610
A/D
LED DRIVER
620
MICROPROCESSOR
640
630
DISPLAY

FIG. 24

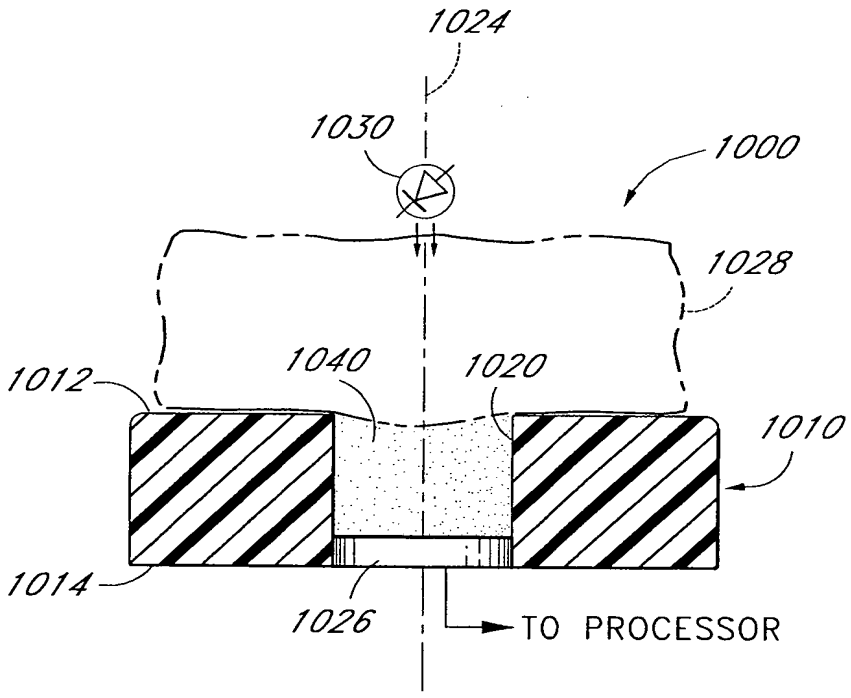

1024
1030
1000
1028
1012
1040
1020
1010
1014
1026
TO PROCESSOR

FIG. 25

FIG. 26

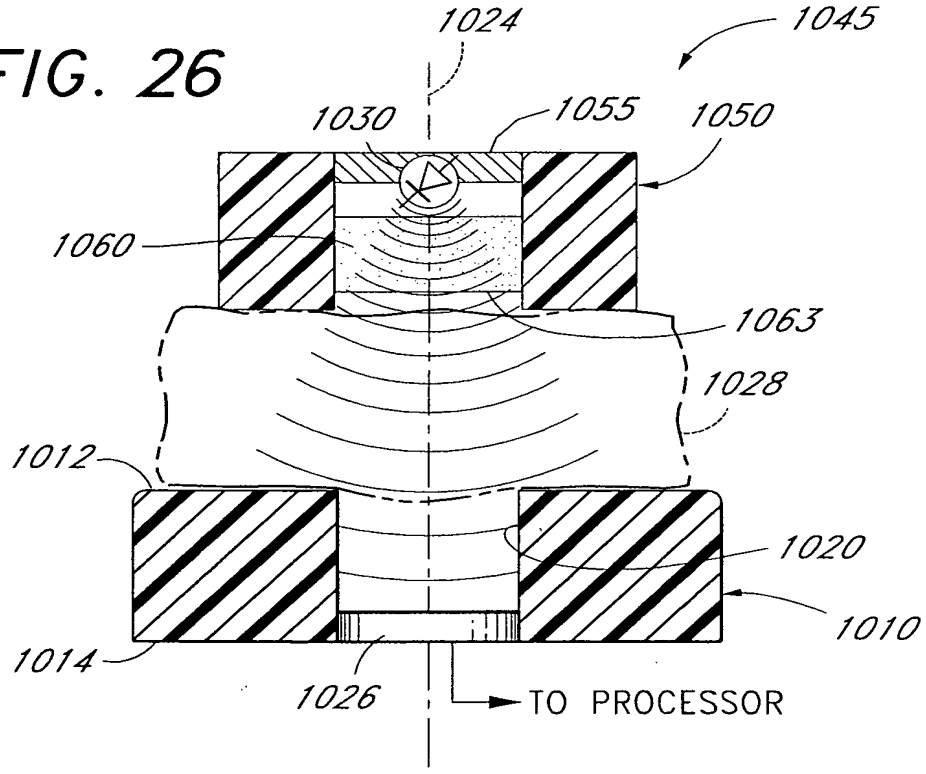
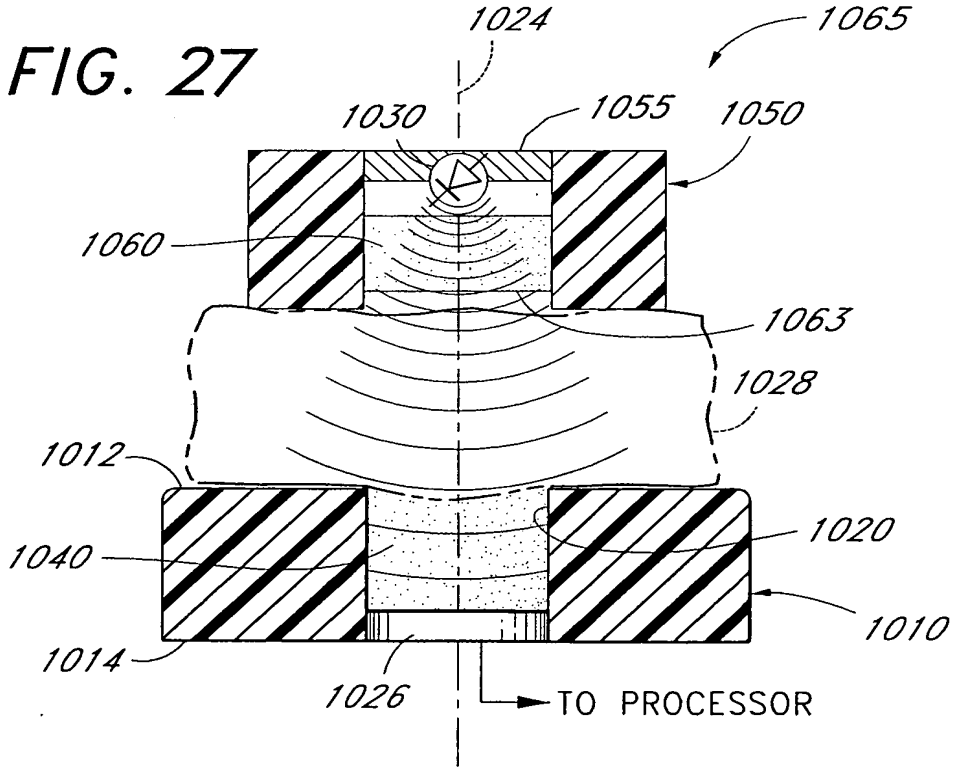

1024
1045
1030
1055
1050
1060
1063
1028
1012
1020
1010
1014
1026
TO PROCESSOR

FIG. 27


1024
1065
1030
1055
1050
1060
1063
1028
1012
1020
1040
1010
1014
1026
TO PROCESSOR

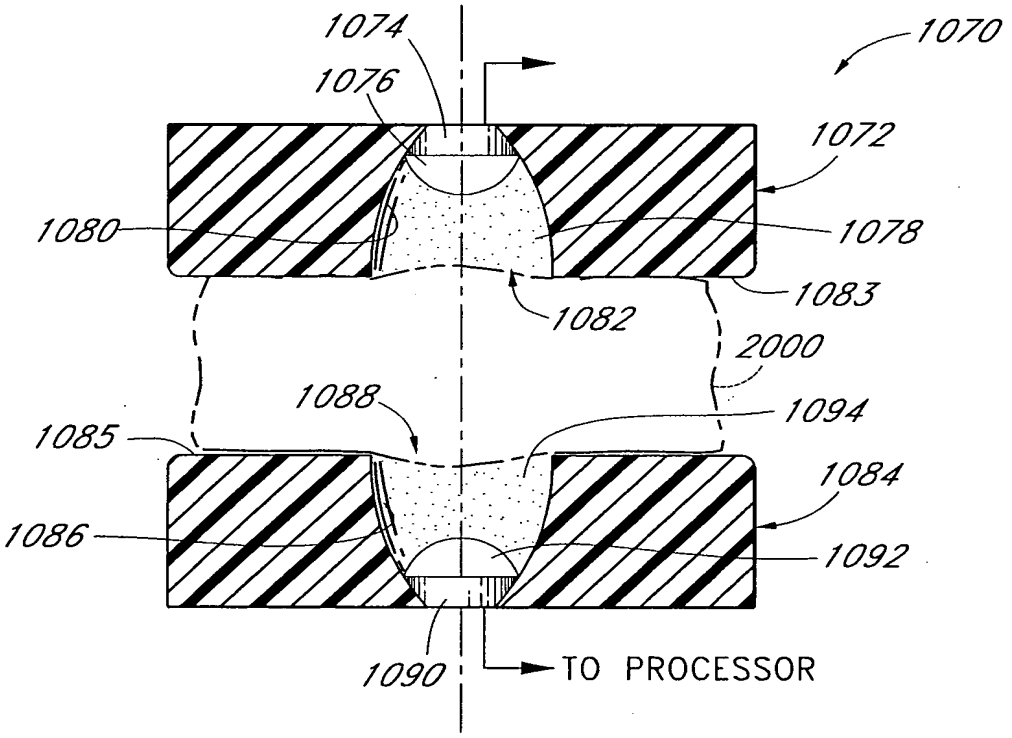
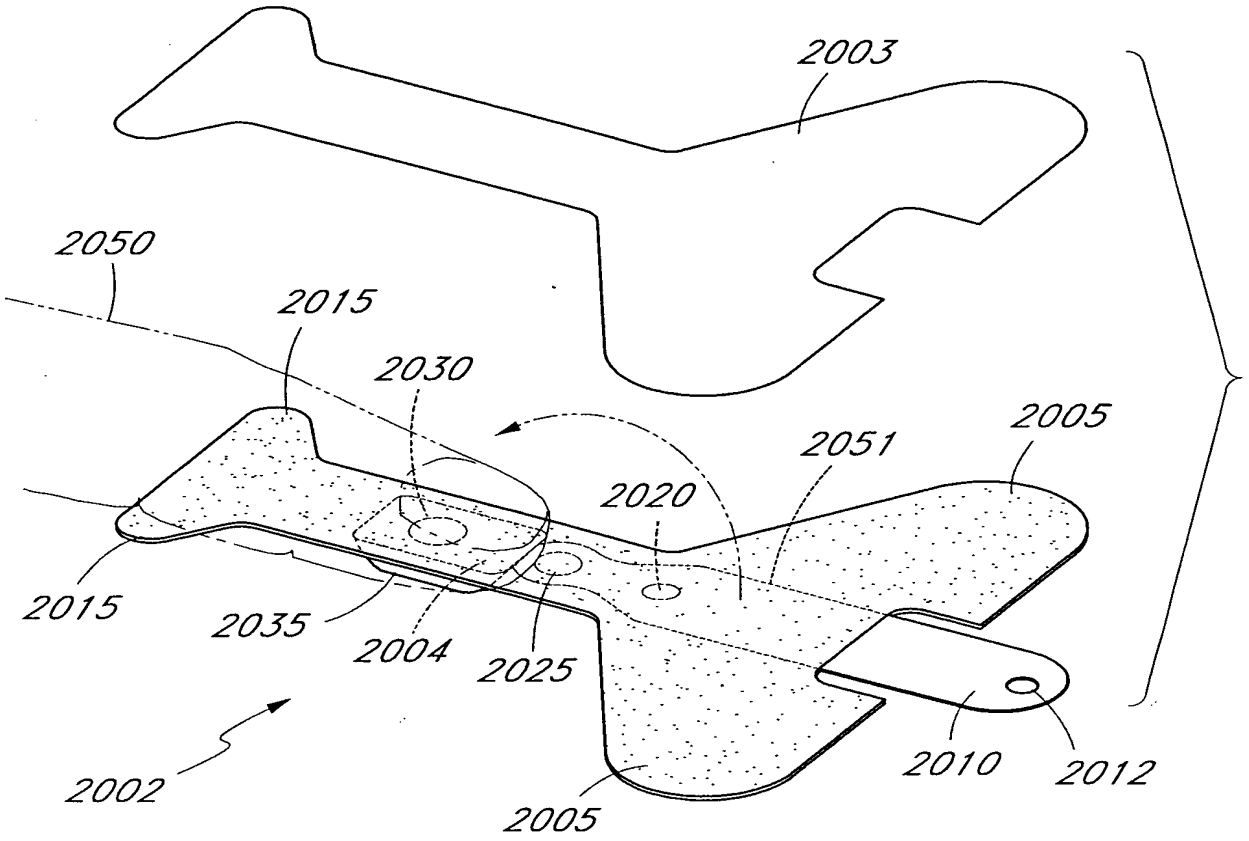

1074
1076
1070
1072
1080
1078
1083
1082
2000
1088
1094
1085
1084
1086
1092
1090
TO PROCESSOR

FIG. 28

FIG. 29A



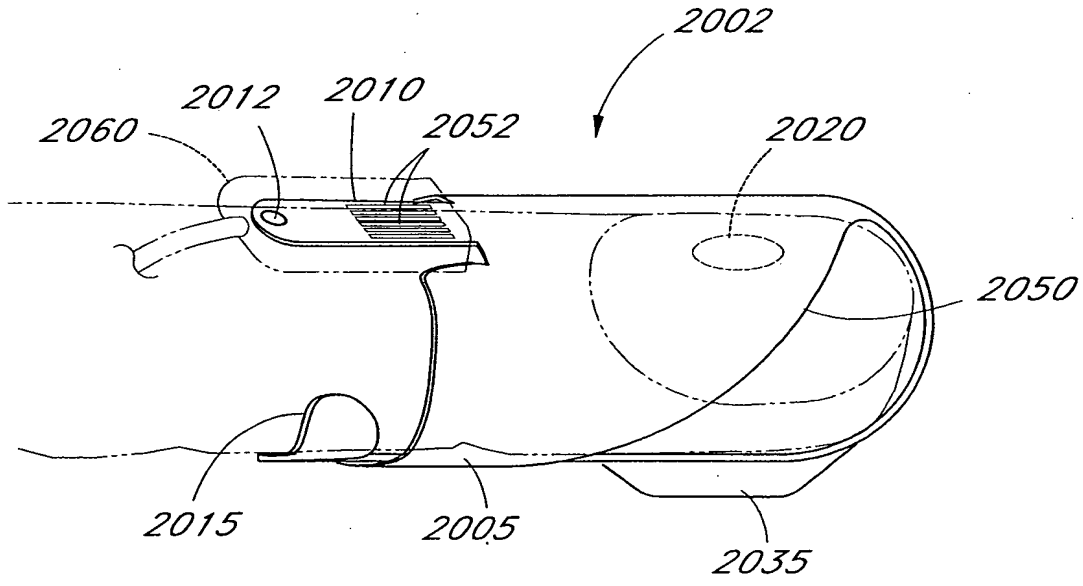


FIG. 29B

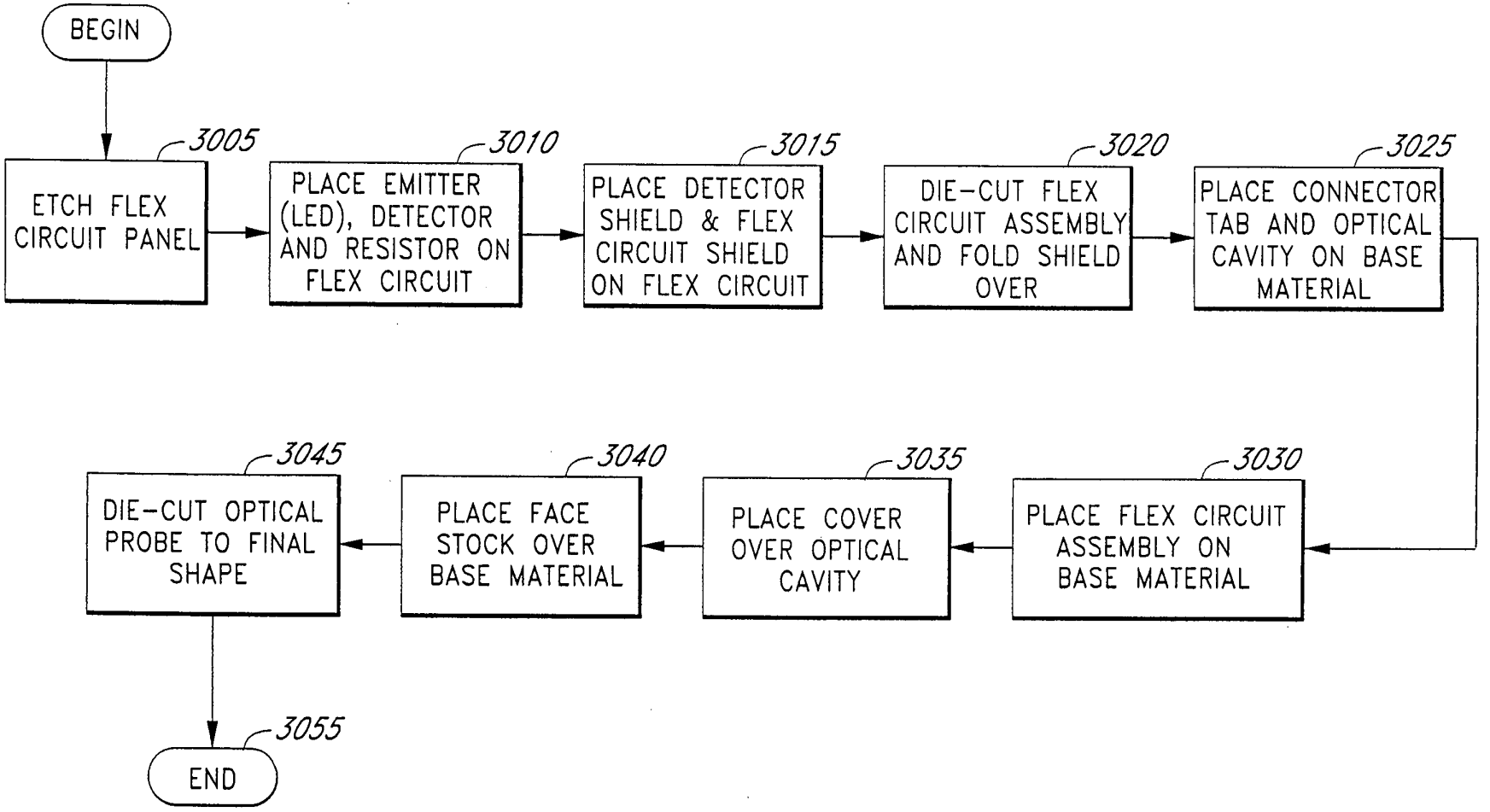

BEGIN
3005
ETCH FLEX CIRCUIT PANEL
3010
PLACE EMITTER (LED), DETECTOR AND RESISTOR ON FLEX CIRCUIT
3015
PLACE DETECTOR SHIELD & FLEX CIRCUIT SHIELD ON FLEX CIRCUIT
3020
DIE-CUT FLEX CIRCUIT ASSEMBLY AND FOLD SHIELD OVER
3025
PLACE CONNECTOR TAB AND OPTICAL CAVITY ON BASE MATERIAL
3030
PLACE FLEX CIRCUIT ASSEMBLY ON BASE MATERIAL
3035
PLACE COVER OVER OPTICAL CAVITY
3040
PLACE FACE STOCK OVER BASE MATERIAL
3045
DIE-CUT OPTICAL PROBE TO FINAL SHAPE
3055
END

FIG. 30

FIG. 31

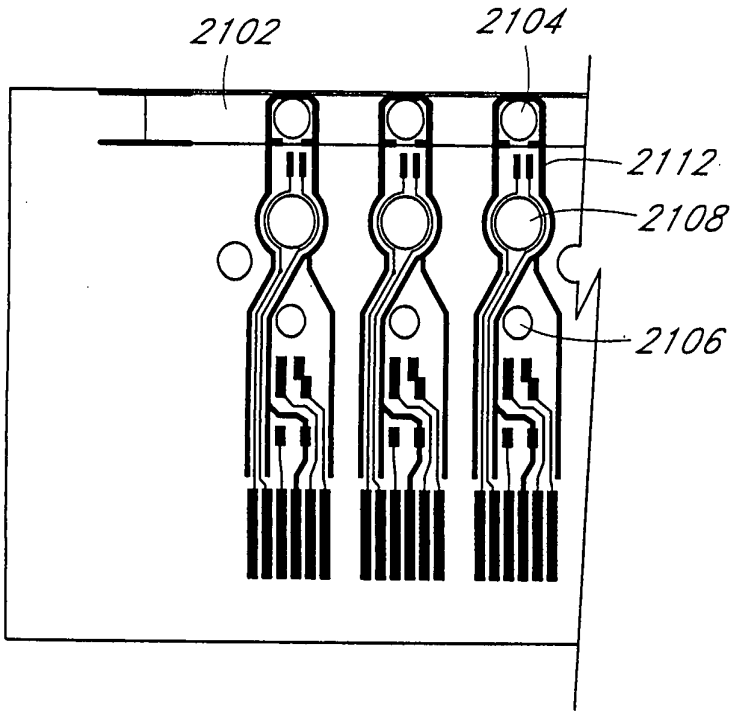


FIG. 31A

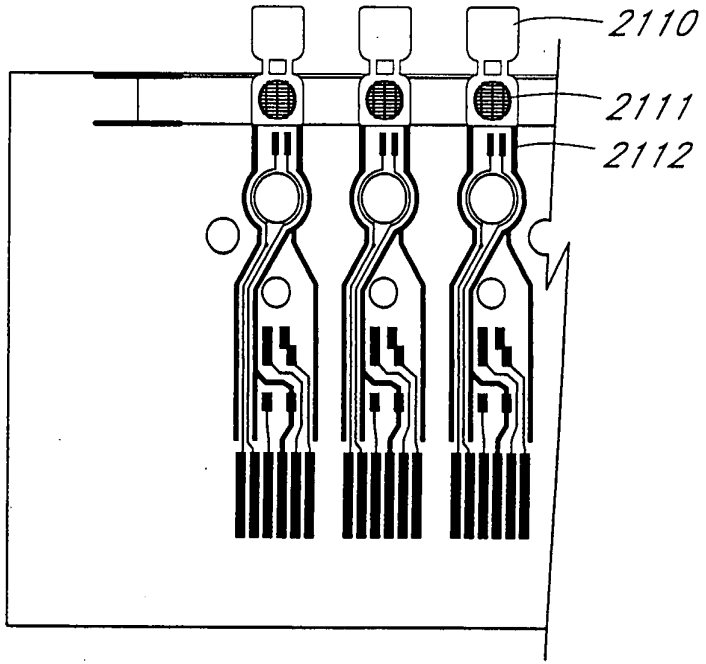


FIG. 31B

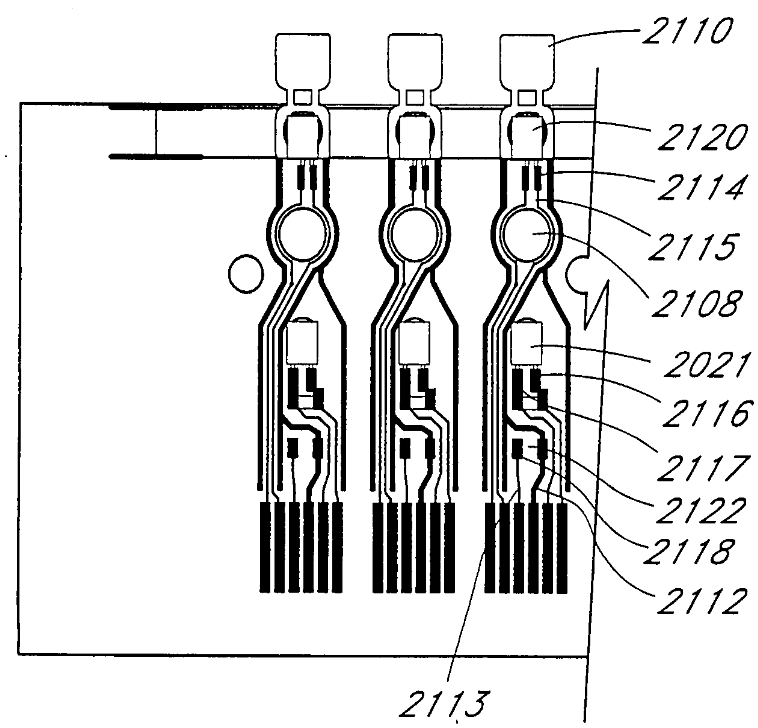


FIG. 32A

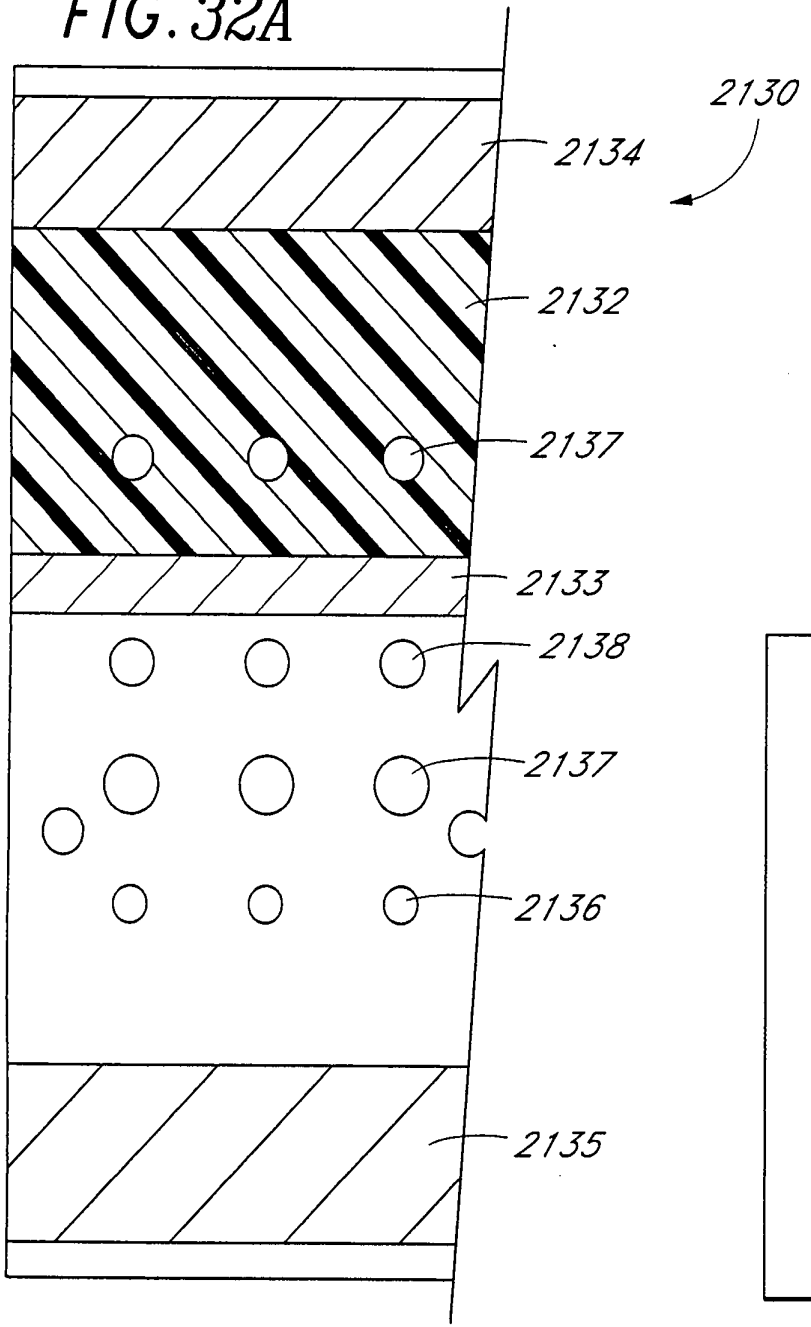
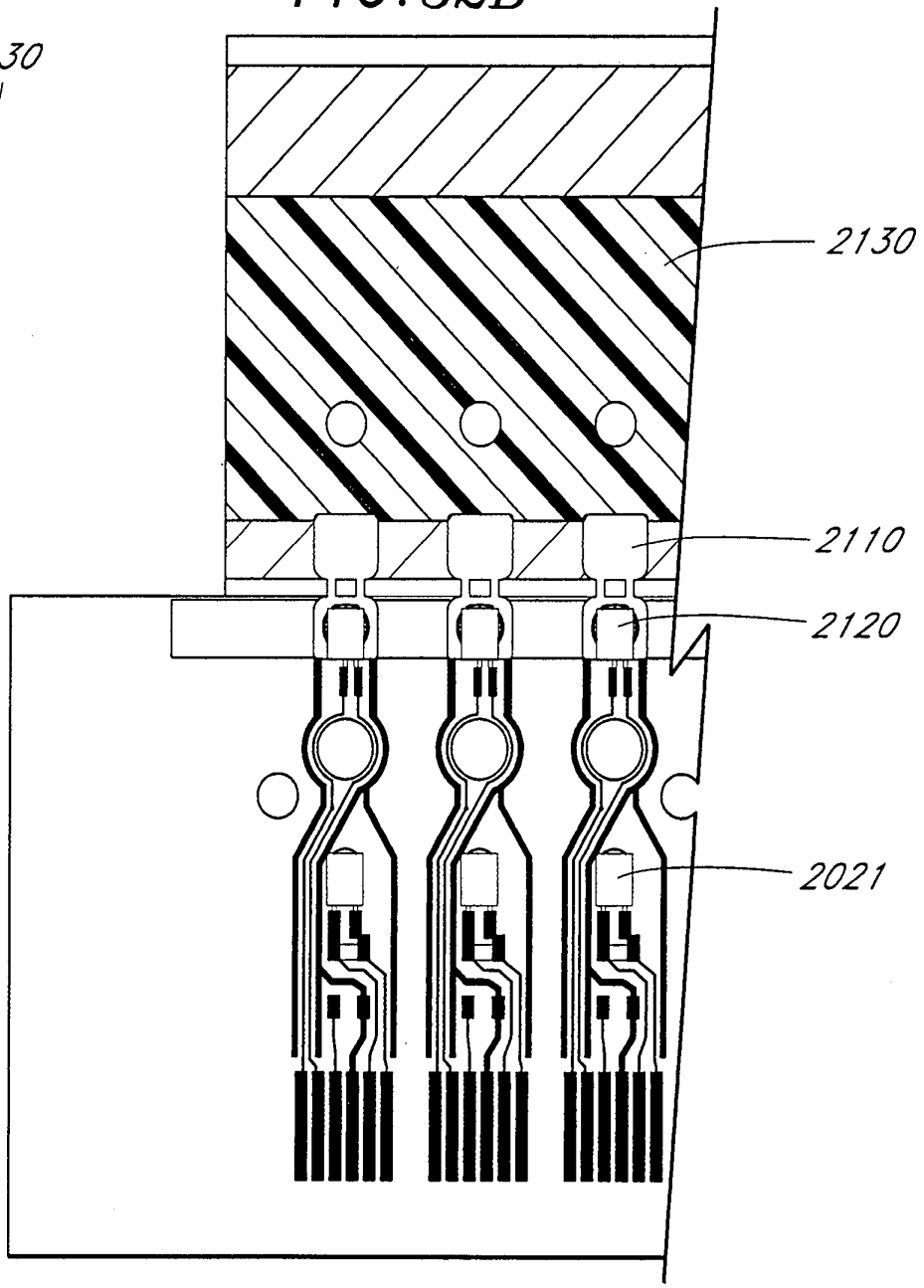


FIG. 32B



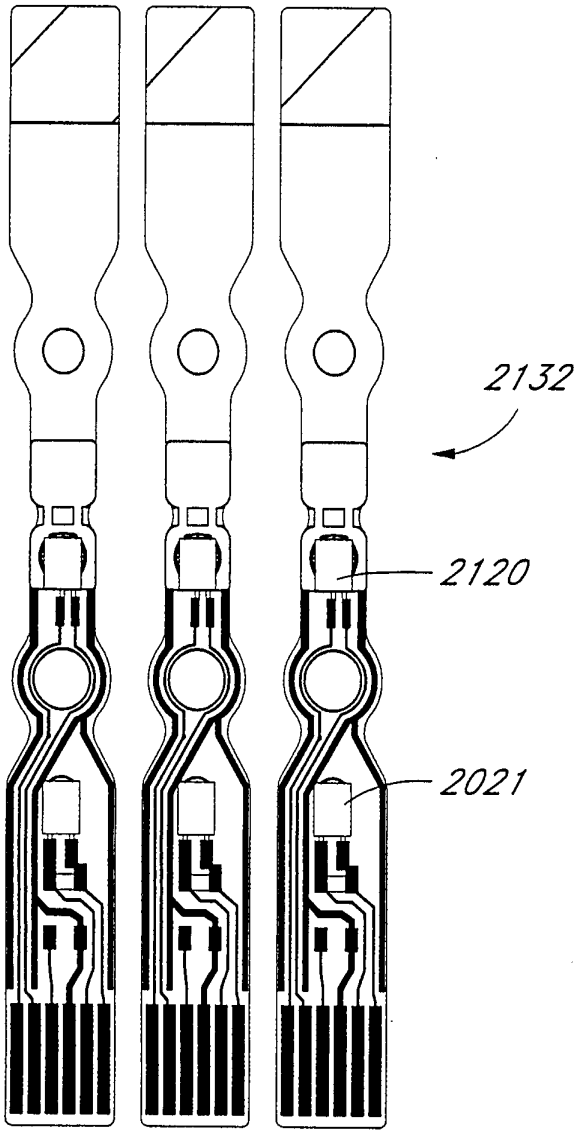


FIG. 33A

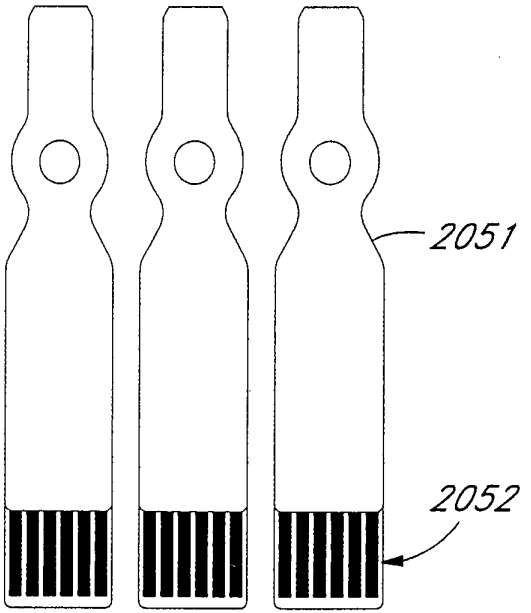


FIG. 33B

FIG. 34

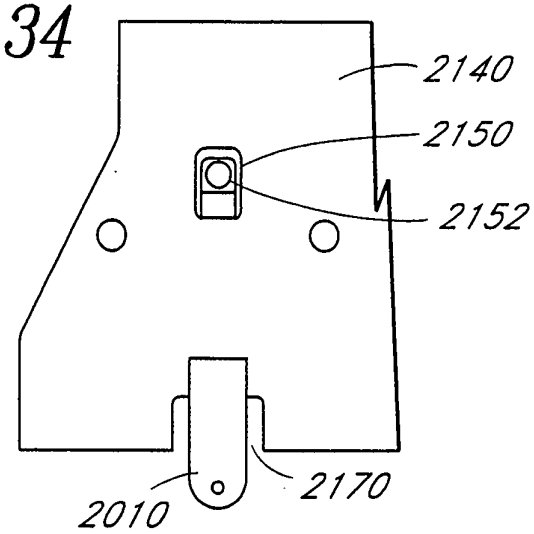


FIG. 35

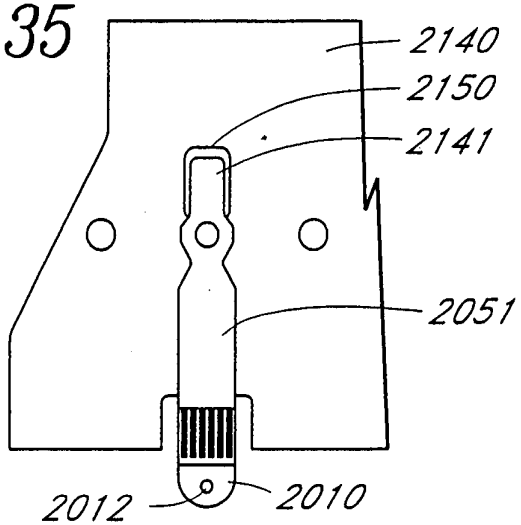


FIG. 36

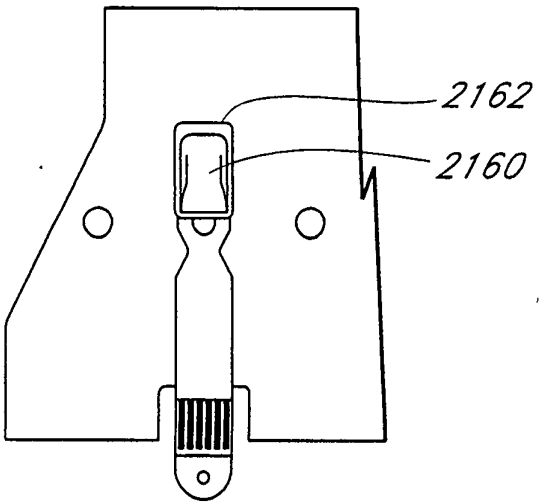


FIG. 37

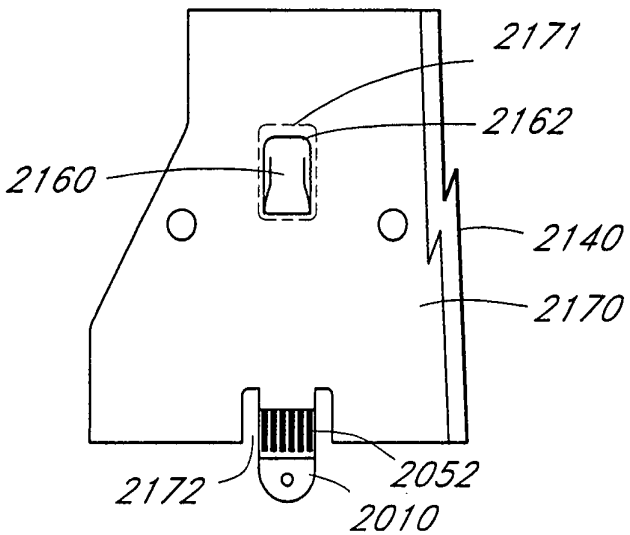
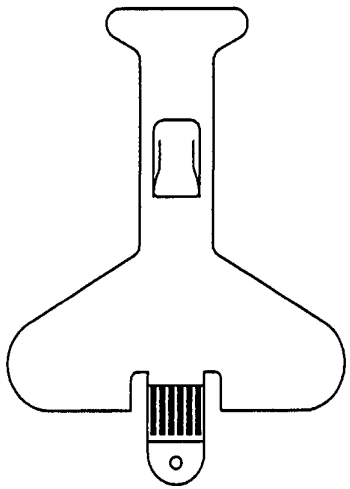


FIG. 38



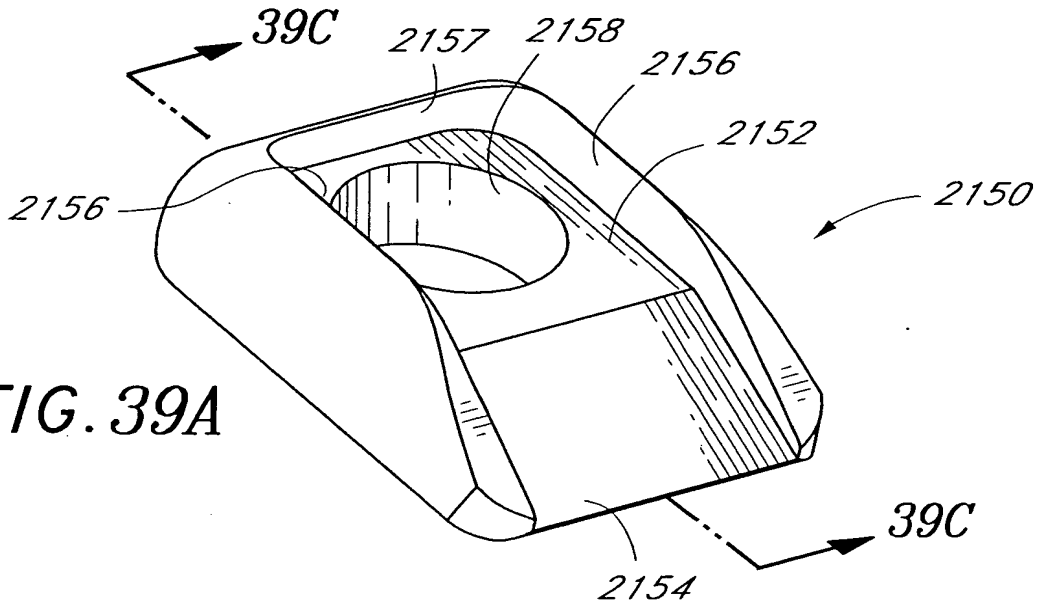
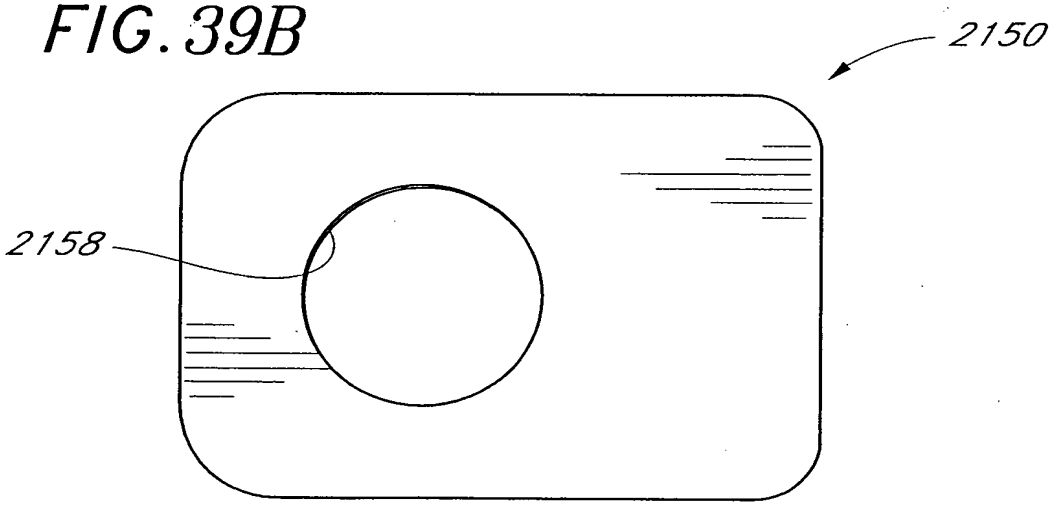


FIG. 39A

FIG. 39B



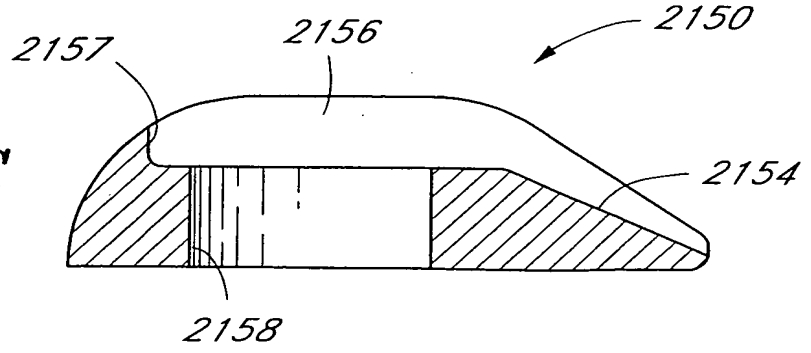


FIG. 39C

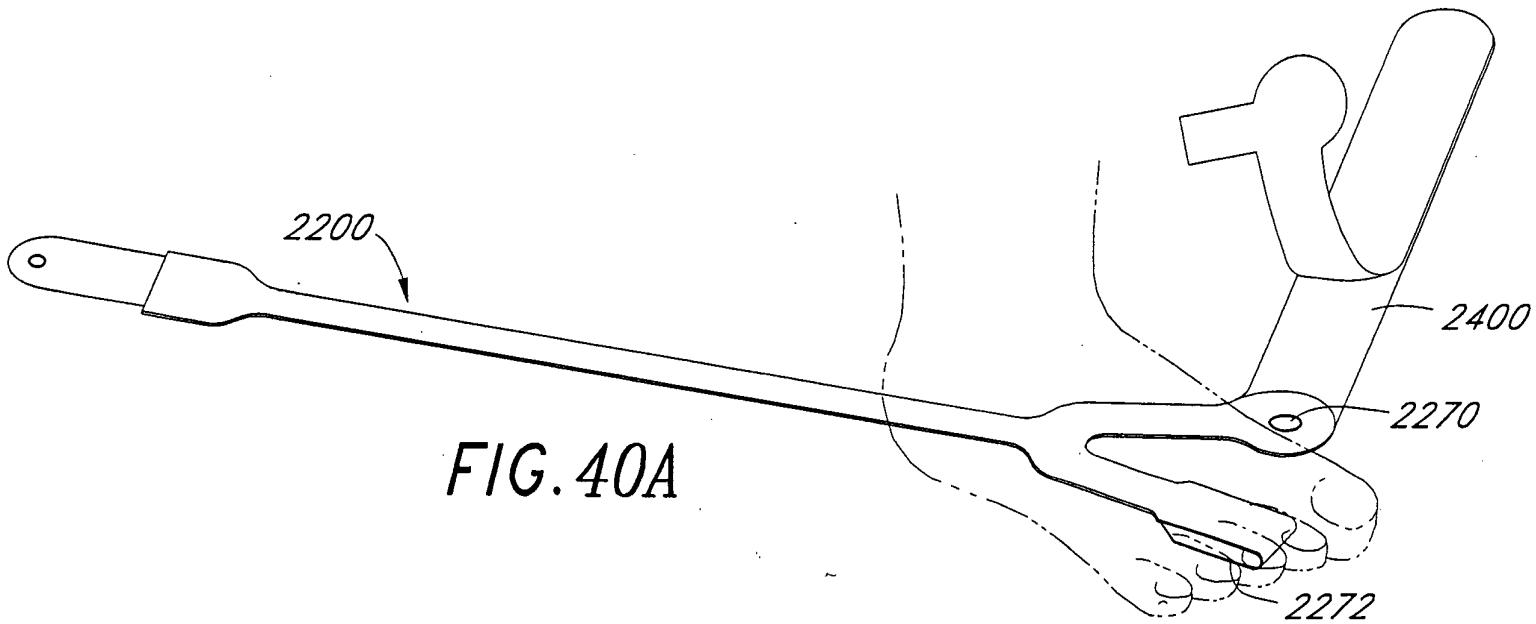


FIG. 40A

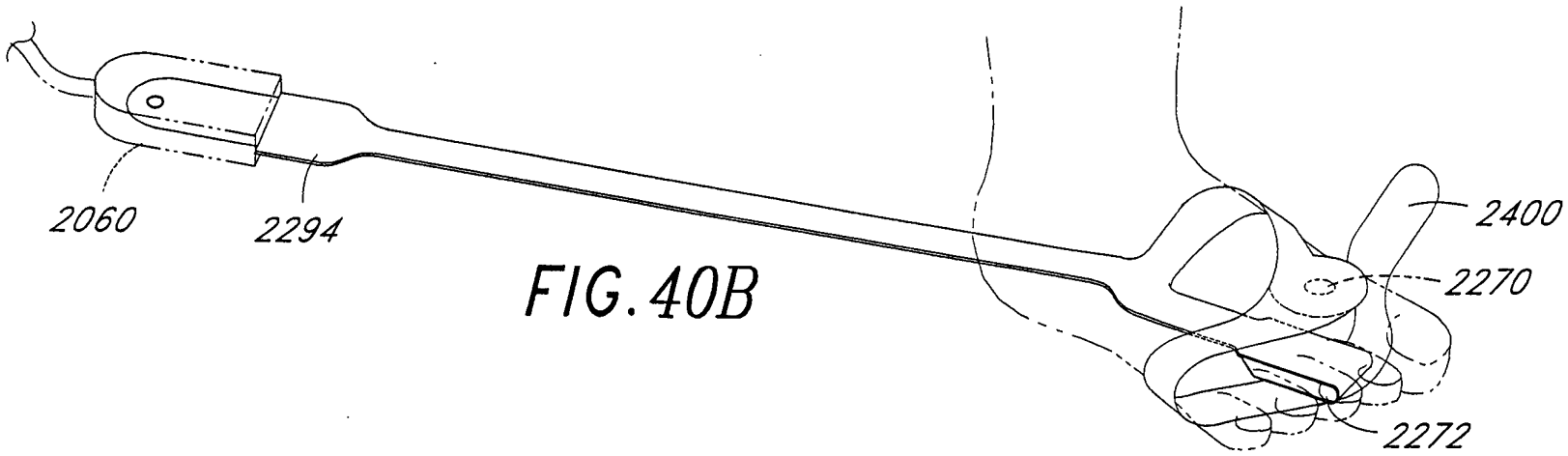


FIG. 40B

FIG. 41

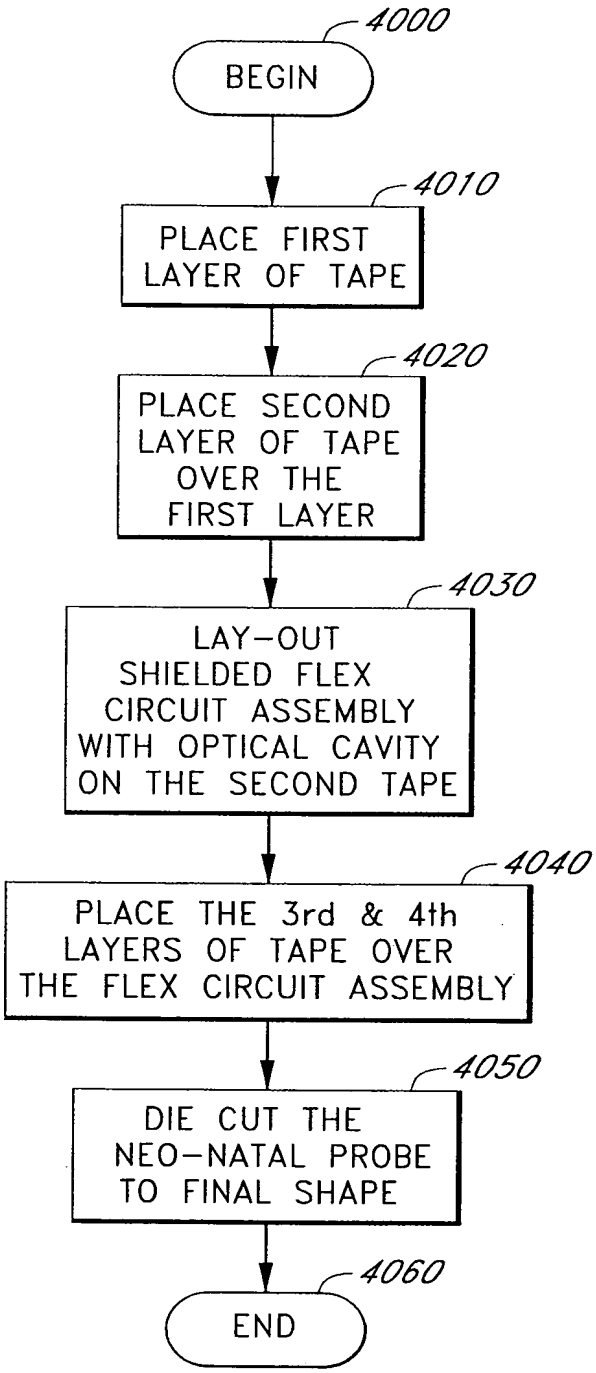

4000
BEGIN
4010
PLACE FIRST LAYER OF TAPE
4020
PLACE SECOND LAYER OF TAPE OVER THE FIRST LAYER
4030
LAY-OUT SHIELDED FLEX CIRCUIT ASSEMBLY WITH OPTICAL CAVITY ON THE SECOND TAPE
4040
PLACE THE 3rd & 4th LAYERS OF TAPE OVER THE FLEX CIRCUIT ASSEMBLY
4050
DIE CUT THE NEO-NATAL PROBE TO FINAL SHAPE
4060
END

FIG. 42

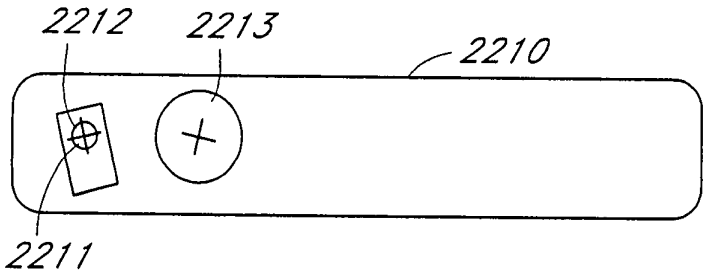
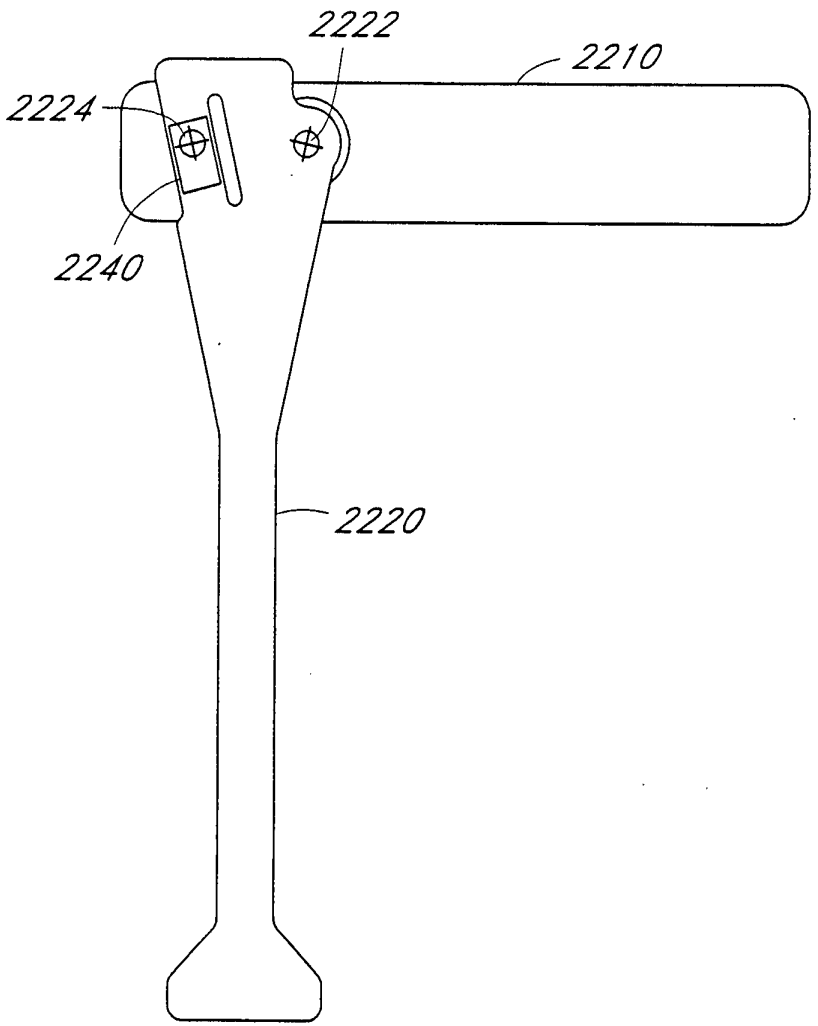


FIG. 43



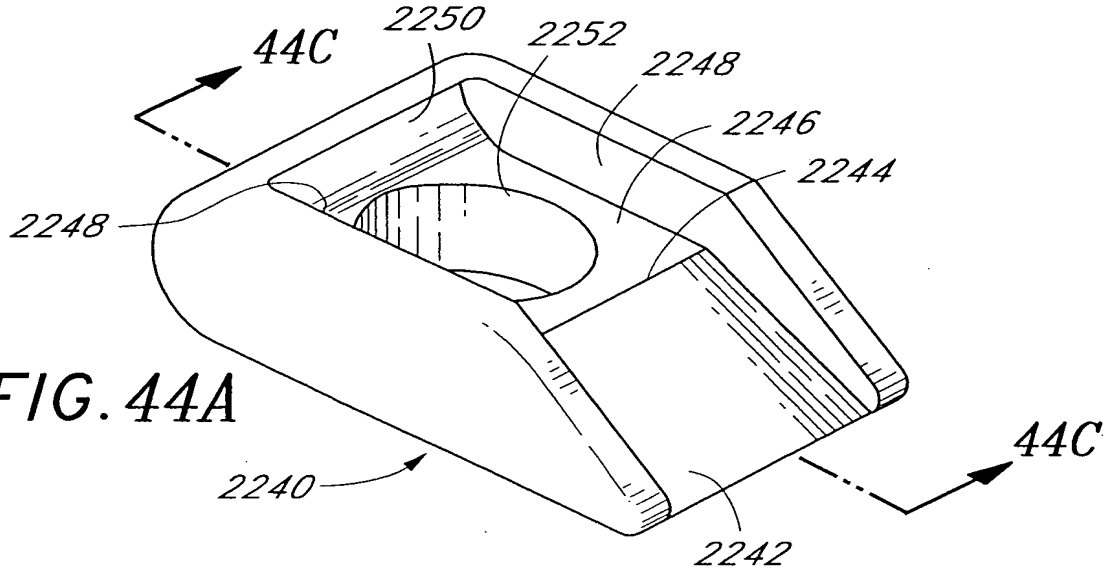


FIG. 44A

FIG. 44B

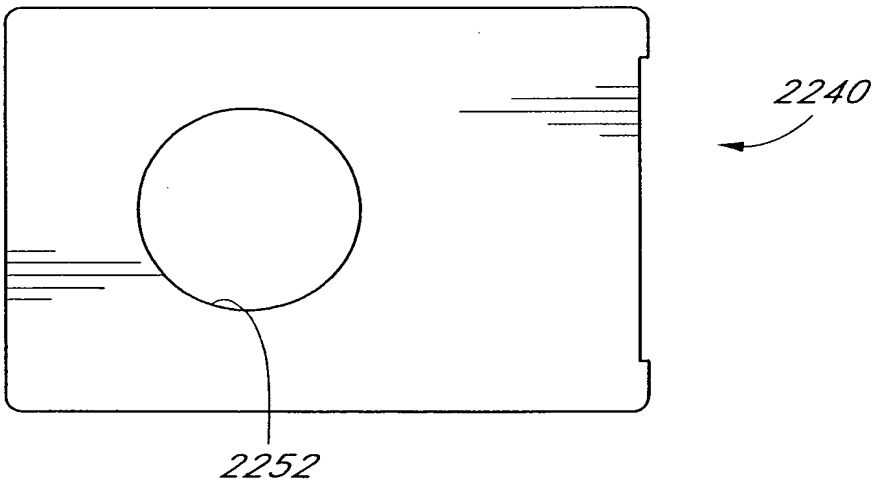
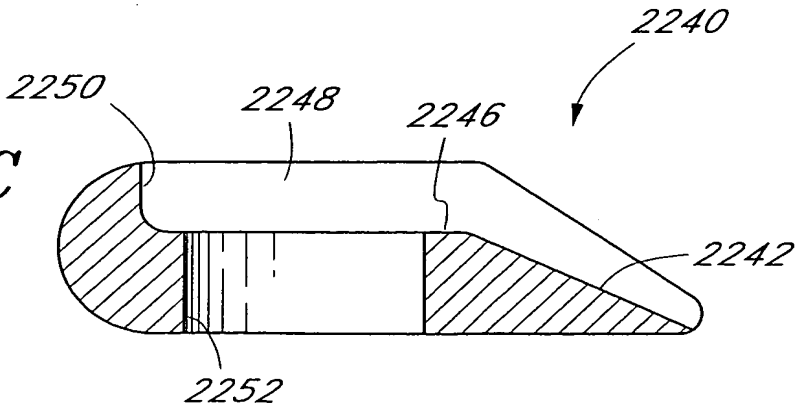


FIG. 44C



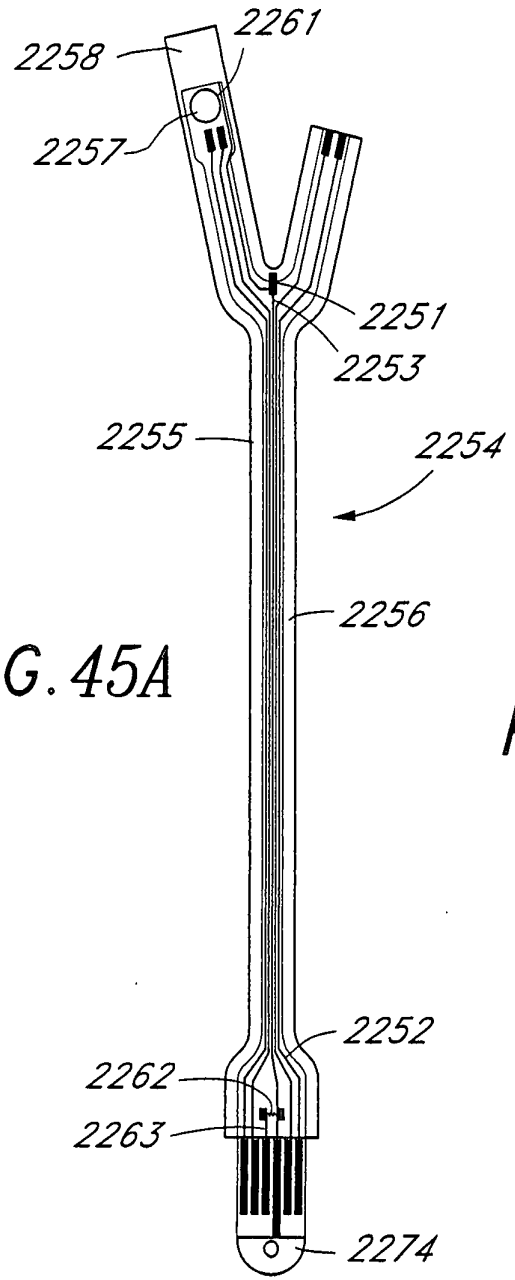


FIG. 45A

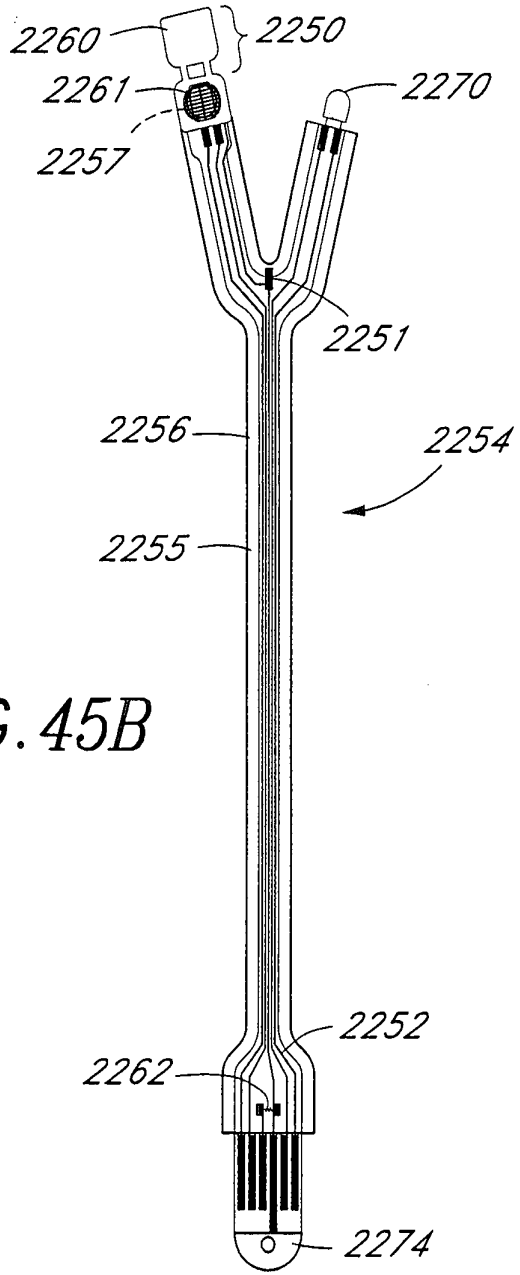


FIG. 45B

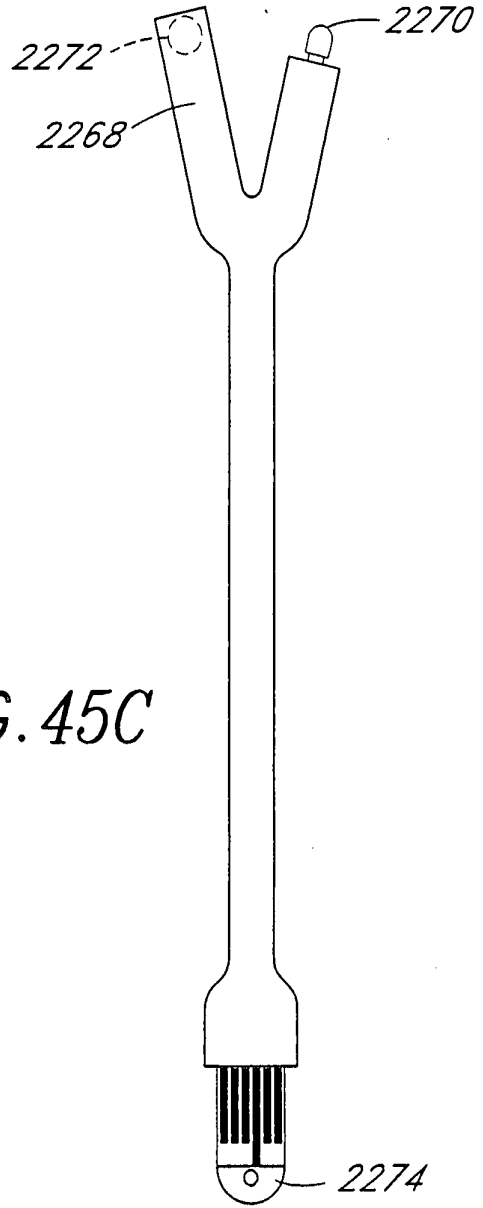


FIG. 45C

FIG. 46

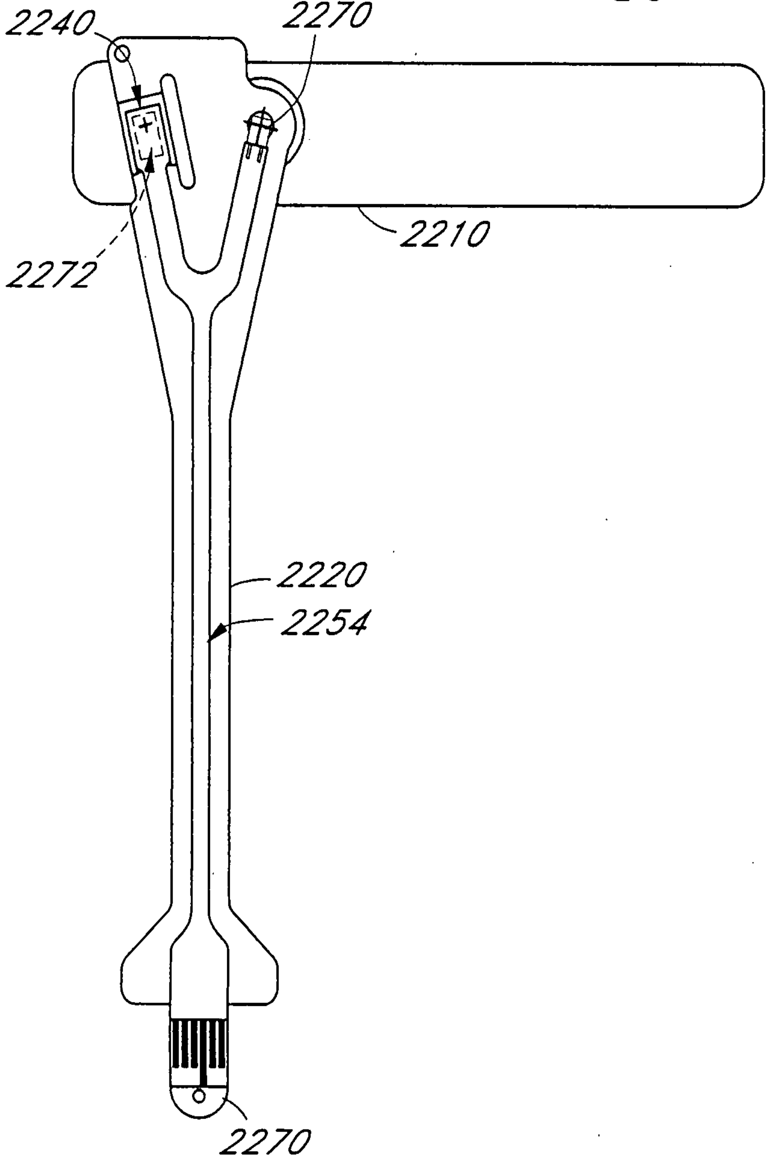


FIG. 47

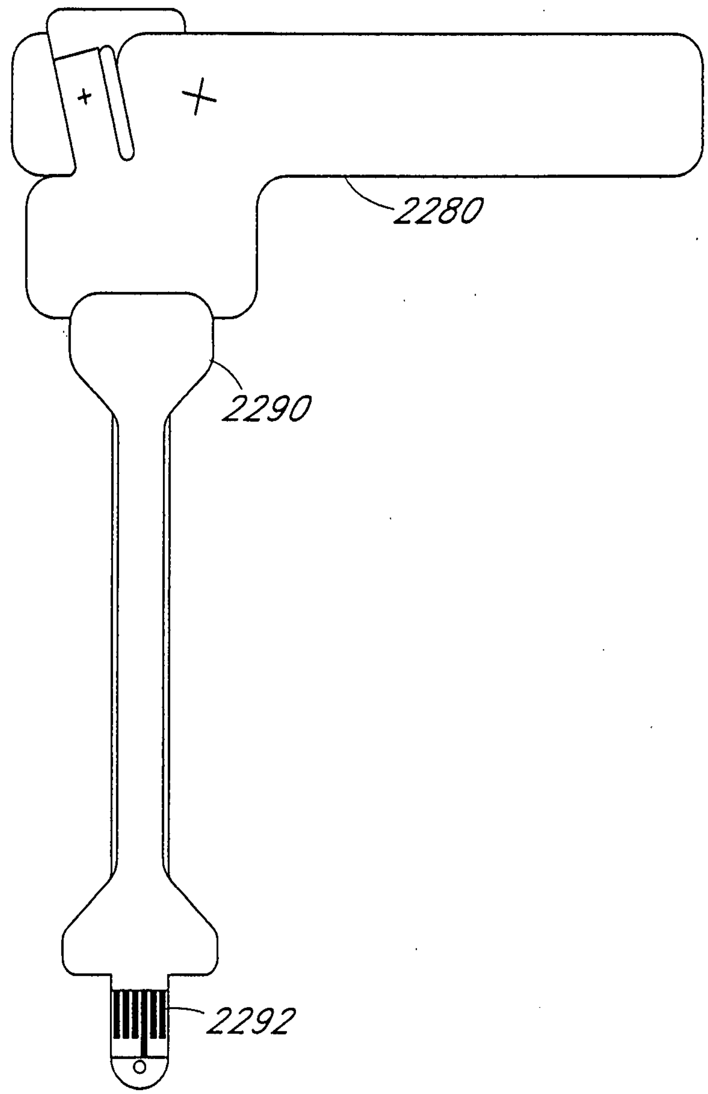


FIG. 48

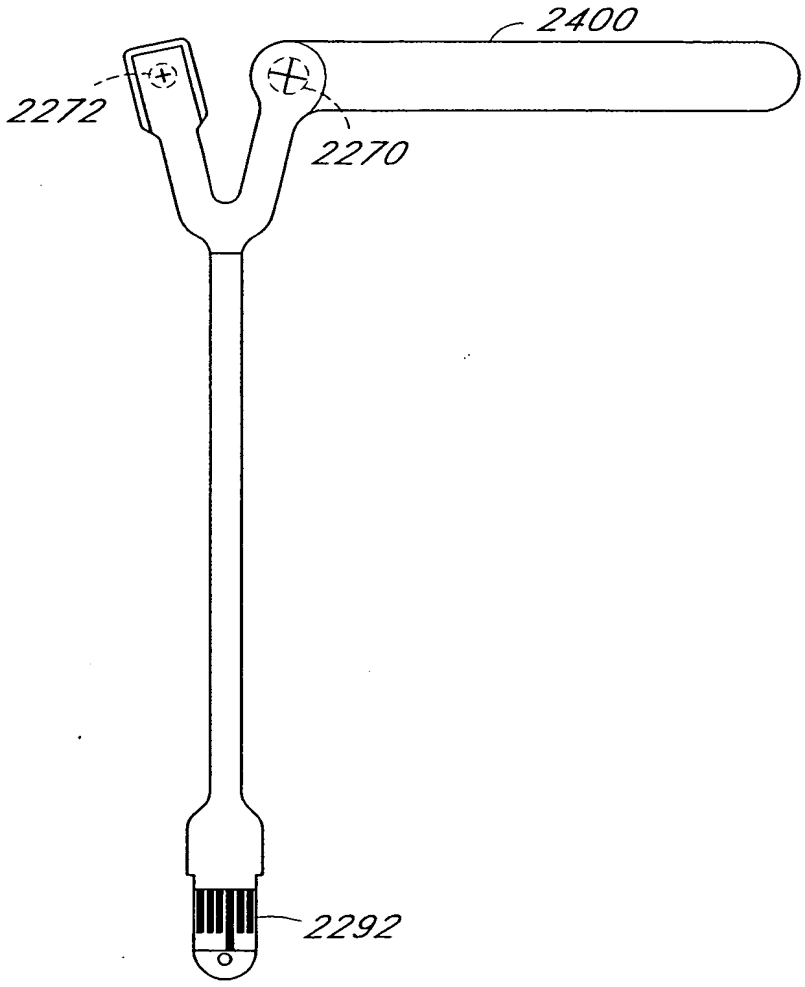


FIG. 49

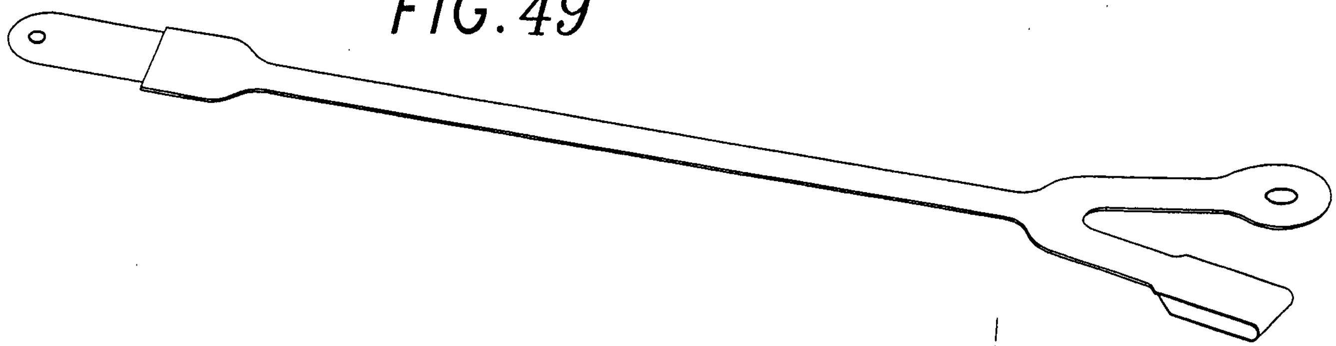
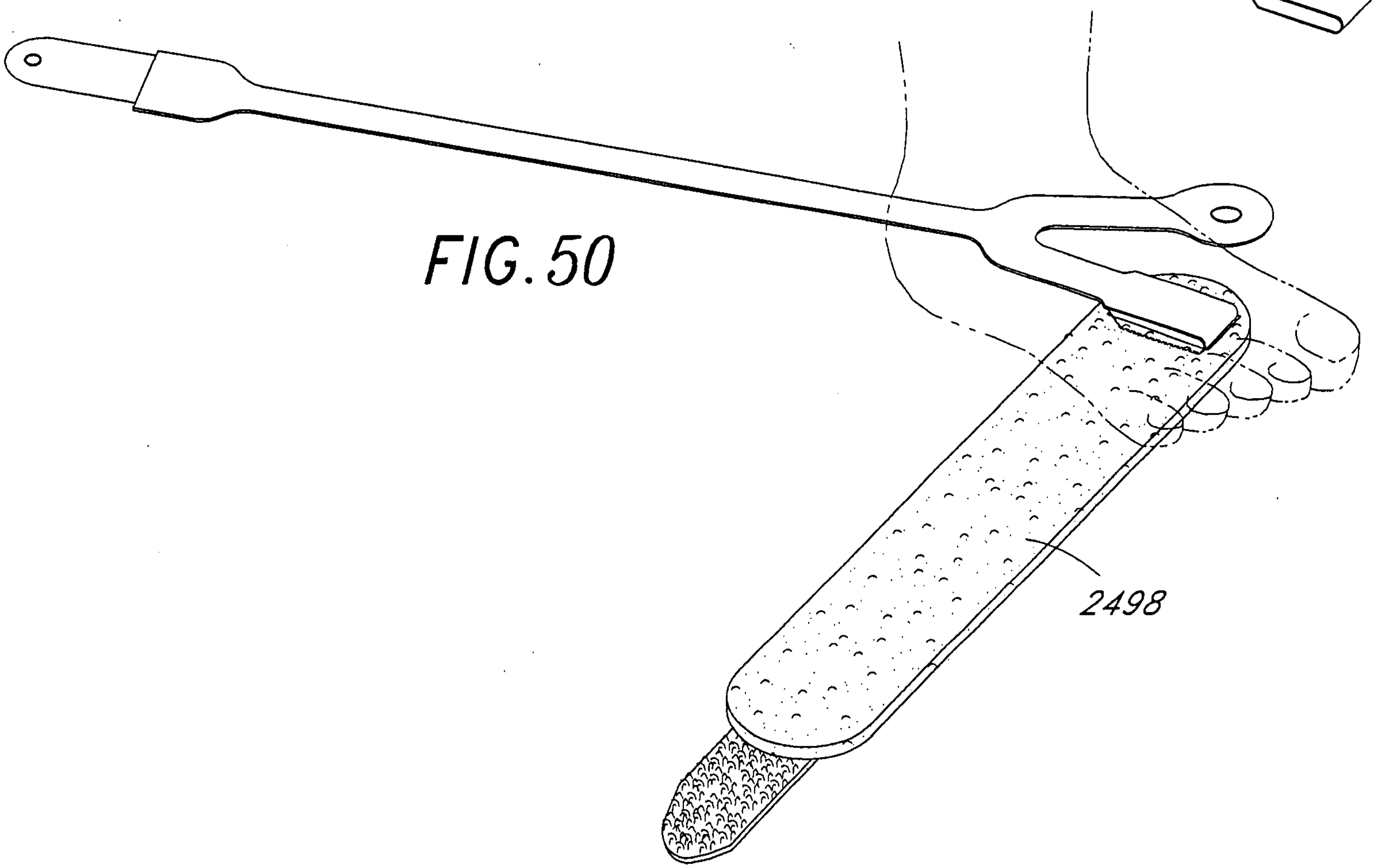


FIG. 50



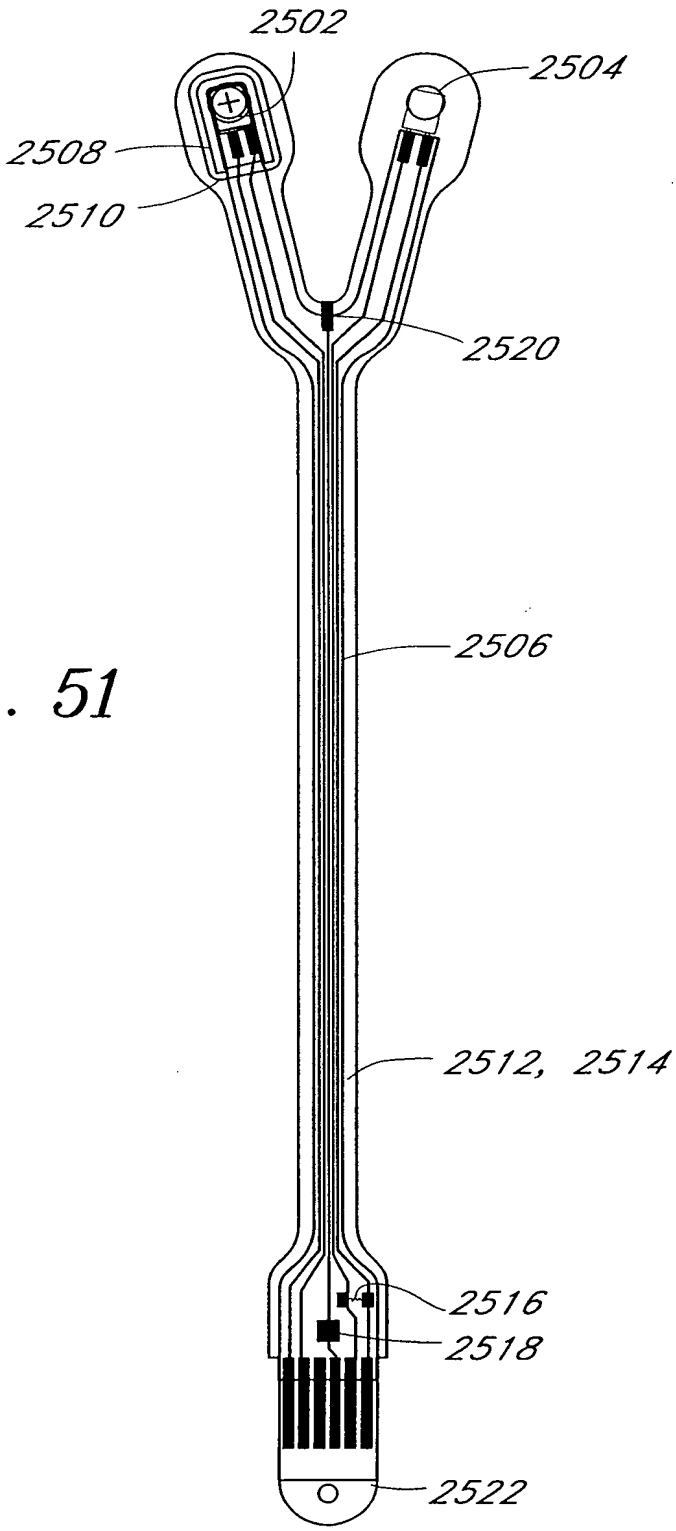


FIG. 51

FIG. 52A

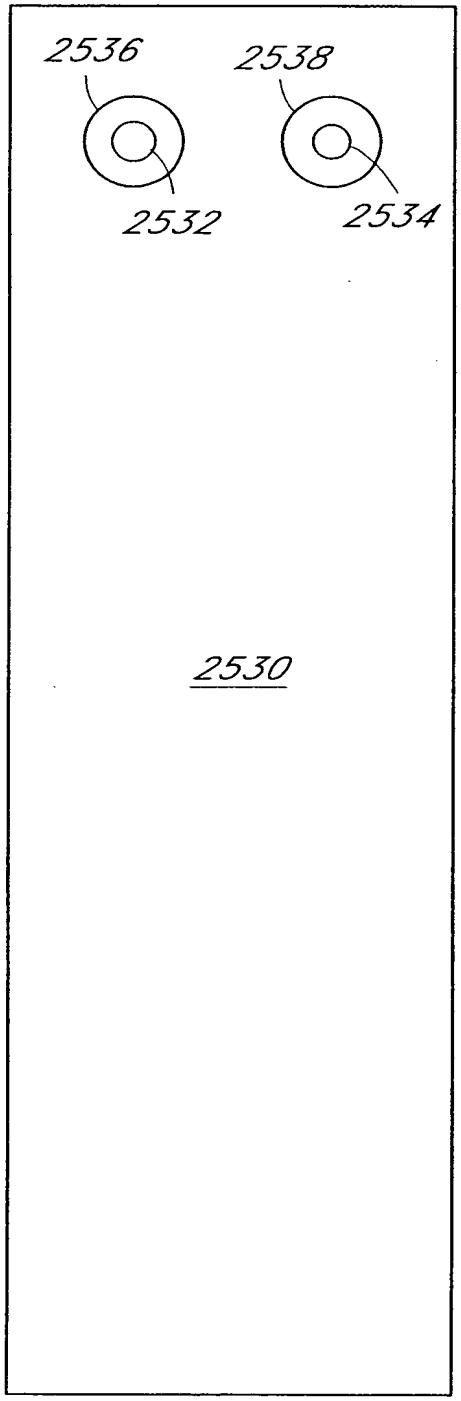


FIG. 52B

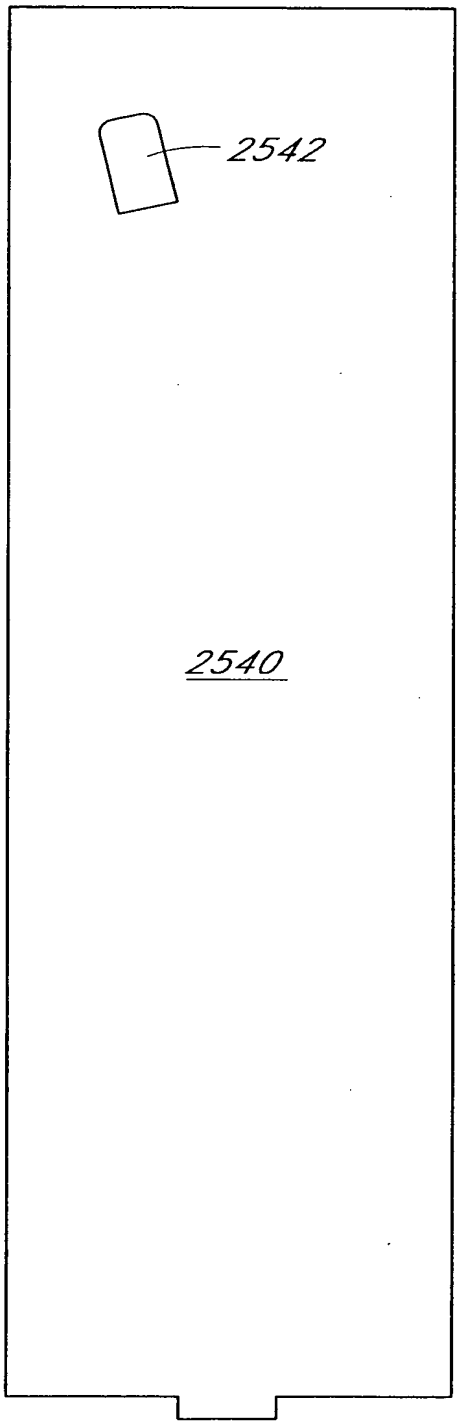
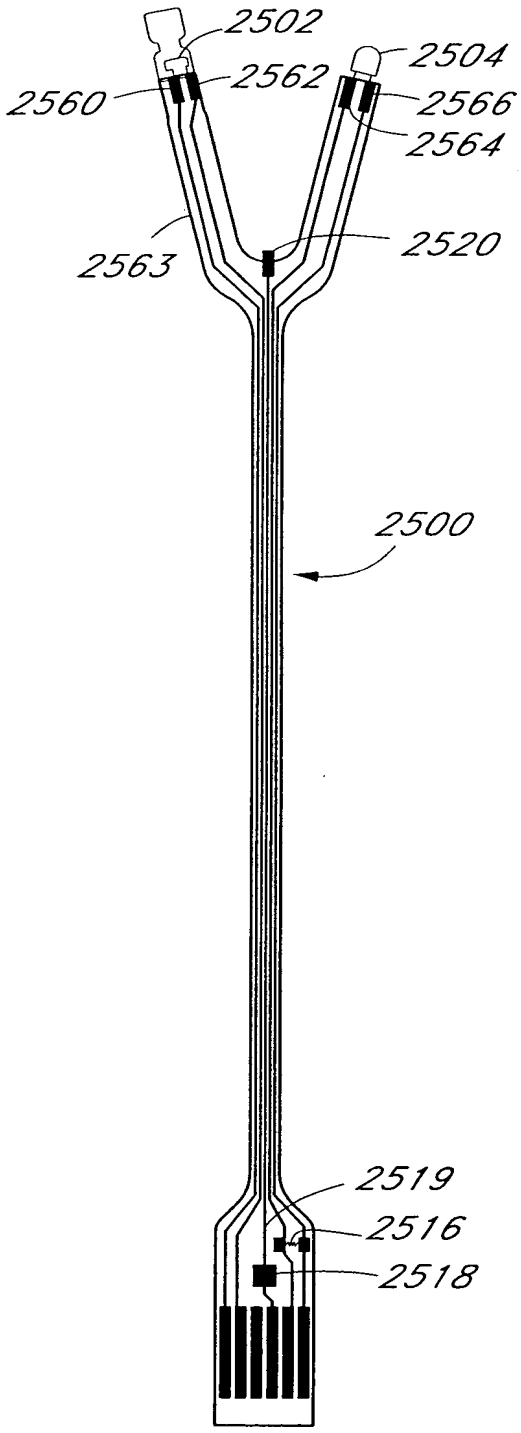
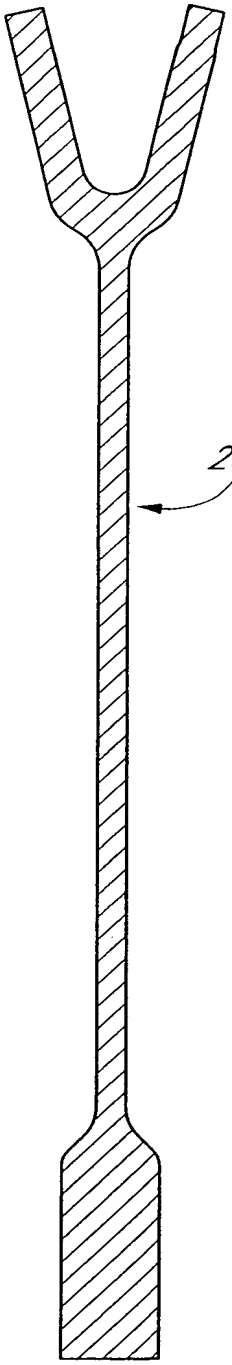


FIG. 53A FIG. 53B FIG. 54





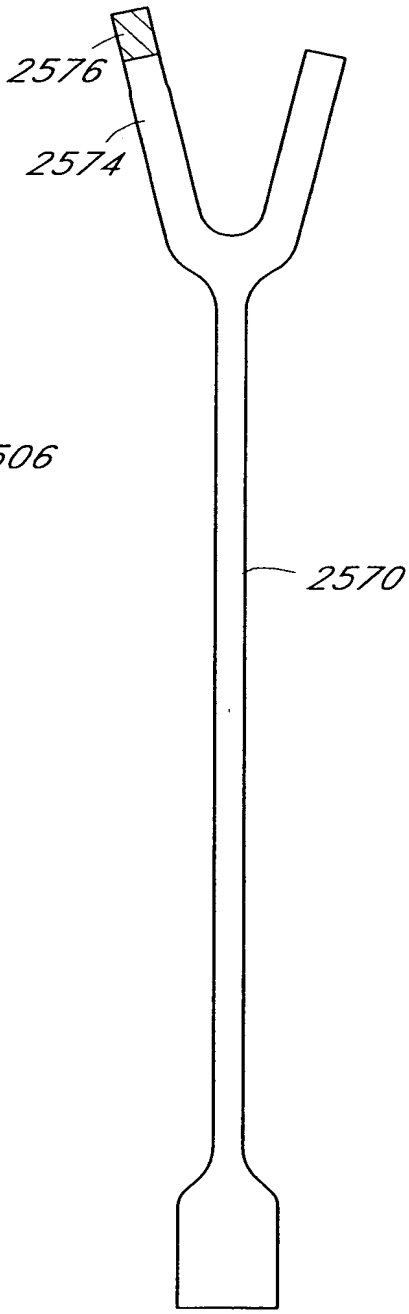


FIG. 55A

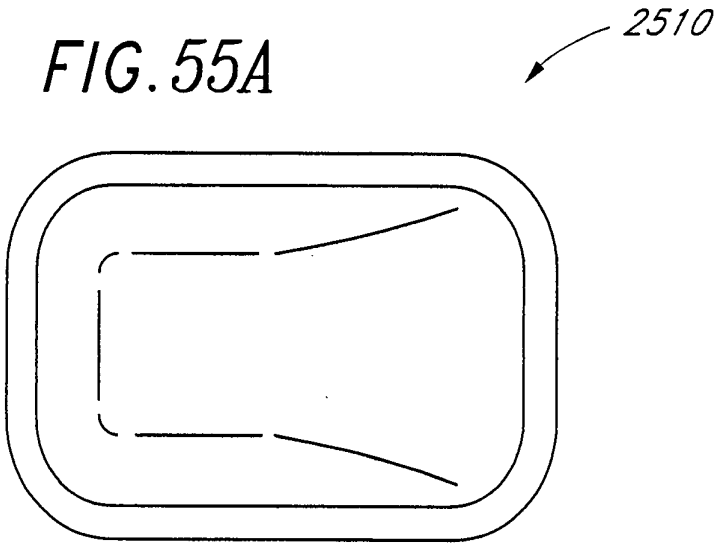


FIG. 55B

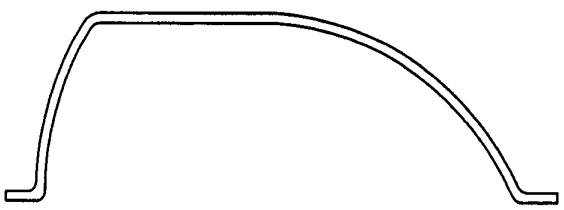
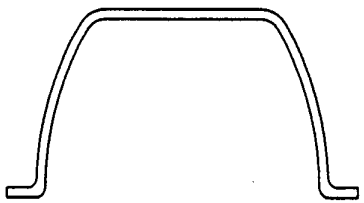


FIG. 55C



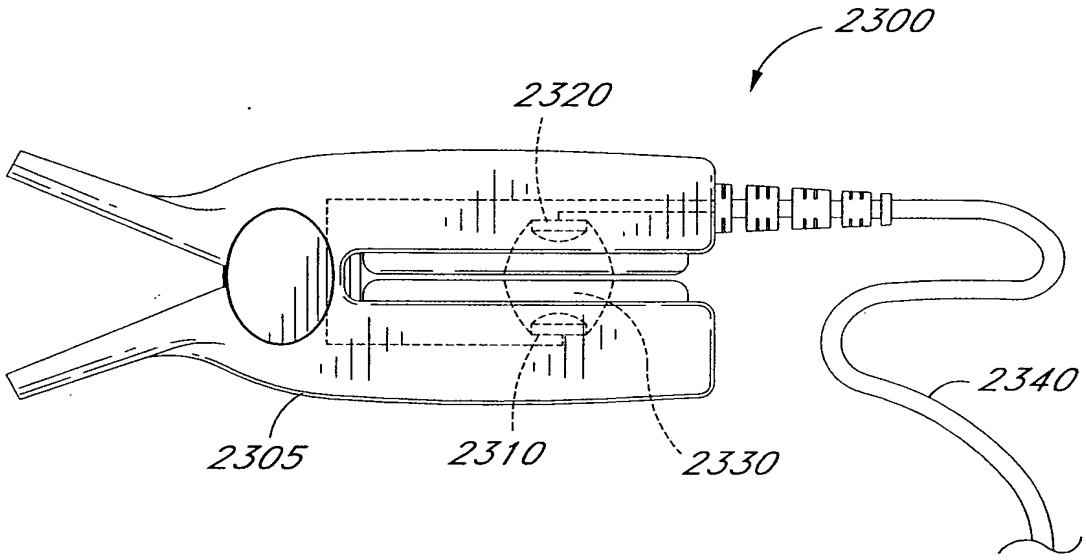


FIG. 56